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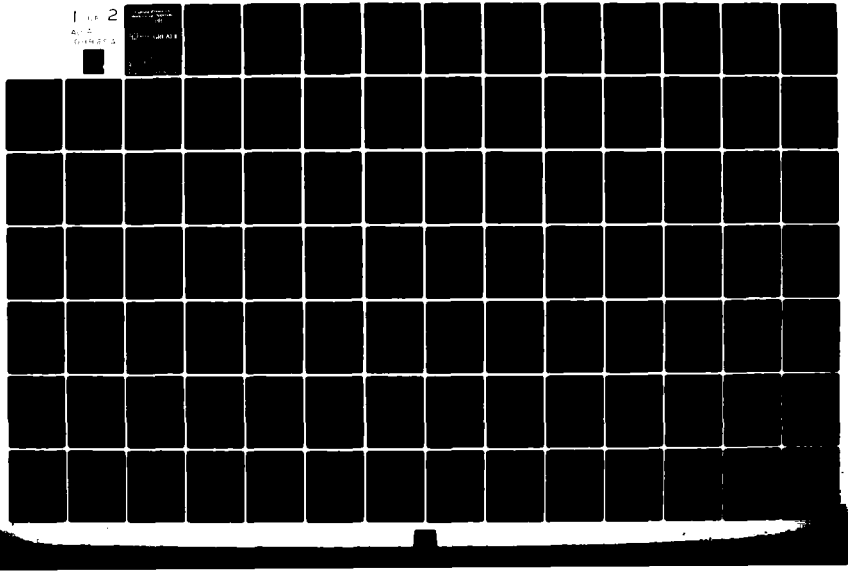

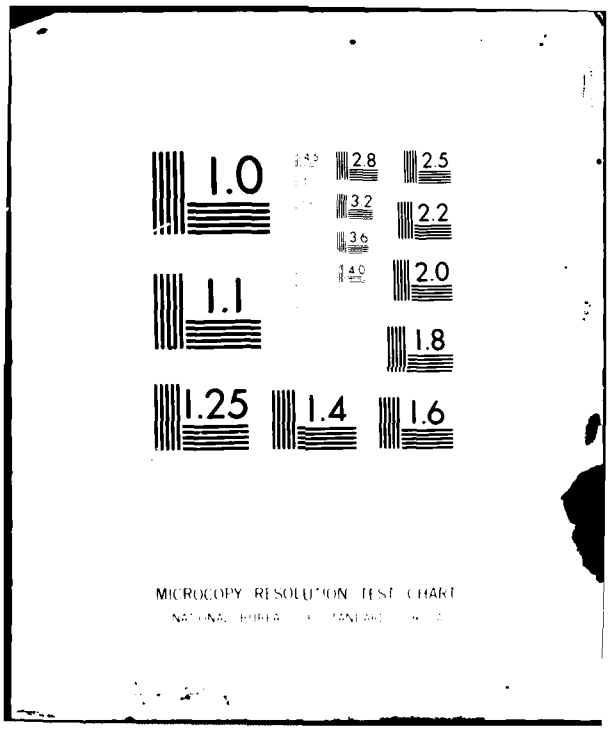
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Cultural Resources Work Group Appendix

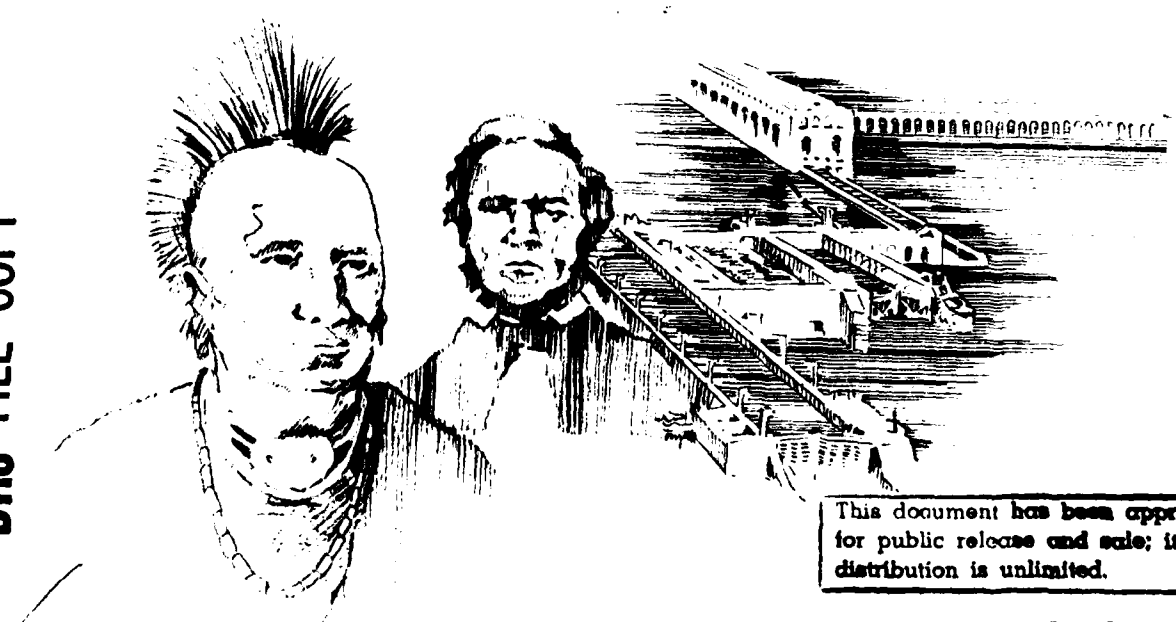
LEVEL II

A

FINAL
DECEMBER
1980

GREAT II

Upper Mississippi River
(Guttenberg, Iowa to Saverton, Missouri)



Great River Environmental Action Team

Great River Environmental Action Team II (GREAT II).

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Cultural Resources Work Group Appendix.

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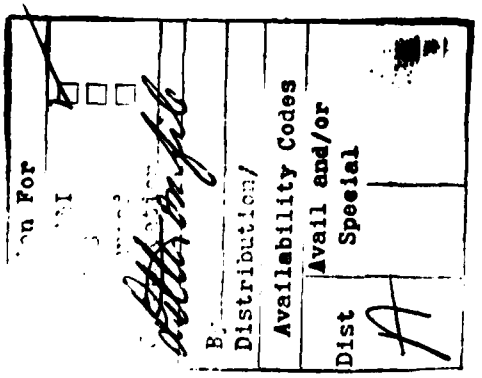
This document was prepared and printed in response to Purchase Order DACW25-79-M-1707, dated August 21, 1979 from the US Army Corps of Engineers, Rock Island District.



EXECUTIVE SUMMARY

The Cultural Resources Work Group of GREAT II consisted of members affiliated with the Rock Island District, Corps of Engineers; the Division of Historic Preservation of the Iowa State Historical Department; Luther College in Decorah, Iowa; the University of Illinois; the Illinois Department of Conservation; the Missouri Department of Natural Resources; and the State Historical Society of Wisconsin. This group was responsible for identifying cultural resource problems in the GREAT II study area, formulating appropriate studies within the context and scope of GREAT to better define or solve the most important of these problems, and finally to make recommendations to the Plan Formulation Work Group supportive of cultural resource interests.

The participation of cultural resource agencies, managers, and scholars in the GREAT II study has resulted in focusing attention on several problems in the study area. The study was conducted over a three year period with a very modest amount of funding. While the accomplishments are far less in comparison to those of other work groups, the level of participation has been far greater than other efforts to date to involve the cultural preservation community in complex long-term planning projects in the study area.

Eleven problems were identified by the work group. Two of these were not addressed because they were beyond the scope of GREAT. One problem was subsumed under another problem because the two overlapped considerably. Eight problems were addressed; two of which involved studies, the others being treated in this appendix.

The major accomplishments of the work group were: completion of a literature search and inventory study which brought together in one compendium all of the official site

listings for cultural resources known at the time in the study area and much of the published and unpublished literature germane to the cultural resources of the study area. This study became Technical Report No. 1. Secondly, a member of the work group prepared Technical Report No. 2, a brief overview of the effects of inundation on archaeological sites in the GREAT II study area. Several important archaeological sites are being adversely affected by erosion resulting from pool management. Other work group accomplishments included the successful review of GREAT II studies, and participation in the review of recommendations acted upon by the Plan Formulation Work Group.

Eight recommendations were made by the work group. All of the eight recommendations involve further studies. The most important recommendation is that adequate surveys be conducted on a pool by pool basis until all pools are completed in order to locate and identify cultural resources on lands under the control or jurisdiction of the federal government. If it is implemented the recommendation will result in completion of the surveys required by 33 CFR 305 but which are progressing at a very slow pace, much slower than the rate of destruction of the nonrenewable resource base. The information which would result from this effort is the very basic information needed to design management strategies for any cultural resource in the study area.

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LIST OF TABLES AND ATTACHMENTS

GLOSSARY OF TERMS

Cultural resource: this is a broad descriptive term encompassing any object, site, district, place, building, or structure which may contain or has been demonstrated to contain data, information, or value in understanding the human past.

Survey: this a field action which locates, identifies, and evaluates cultural resources; it is normally designed in advance and reports of surveys are normally made as part of the documentation of the survey.

UMR: the Upper Mississippi River

National Historic Preservation Act: Public Law 89-665, approved October 15, 1966, an "Act to establish a program for the preservation of additional historic properties throughout the Nation and for other purposes" (80 Stat. 915, 16 U.S.C. 470, as amended; 84 Stat. 204 (1970), 87 Stat. 139 (1973), 90 Stat. 1320 (1976), 92 Stat. 3467 (1978).

Executive Order: Presidential Executive Order 11593, May 13, 1971, "Protection and Enhancement of the Cultural Environment" (36 FR 8921, 16 U.S.C. 470).

National Register of Historic Places: a register of districts, sites, buildings, structures and objects of national, state, or local significance in American history, architecture, archaeology, and culture that is expanded and maintained by the Secretary of the Interior under authority of section 2(b) of the Historic Sites Act of 1935 (49 Stat. 666, 16 U.S.C. 461) and Section 101(a)(1) of the National Historic Preservation Act implemented through 36 CFR Part 60.

Advisory Council on Historic Preservation: the council established by Title II of the National Historic Preservation Act, as amended, as an independent agency of the United States to advise the Preseident and the Congress on historic preservation matters, recommend measures to coordinate Federal historic preservation activities, and

comment on federal actions affecting properties included in or eligible for inclusion in the National Register of Historic Places.

State Historic Preservation Officer: the official, who is responsible for administering the National Historic Preservation Act within the state, or a designated representative authorized to act for the State Historic Preservation Officer. These officers are appointed pursuant to 36 CFR 61.2 by the Governor of the state.

I. INTRODUCTION

The Mississippi is the greatest river in North America, gathering run-off from 31 states and two Canadian provinces, draining 1.5 million square miles. It is the third largest watershed in the world, flowing 2,500 miles to the Gulf of Mexico. Millions of people live on its banks and draw life from its waters. Over five hundred kinds of animals live among the diverse plant communities that thrive in and along the river.

Man, in his progress, has put the river to many varied and sometimes conflicting uses. The pressures of man's use of the river are feared to be degrading the environmental qualities of the river. More information is needed on the complex interactions of the river's resources and these resource reactions to man's activities on the river. When this information is obtained, it can then be used to determine where problems exist and the alternatives available to man to solve these problems and coordinate river uses to minimize conflicts.

A. Study Authorization and Development

In response to increasing public concern for the environmental quality of the river, the Great River study was authorized by Congress in the Water Resources Development Act of 1976 (PL94-587). This legislation authorizes the U.S. Army Corps to Engineers...."to investigate and study, in cooperation with interested states and Federal agencies, through the Upper Mississippi River Basin Commision, the development of a river system management plan....".

The total study program includes three Great River Environmental Action Teams (GREAT), which have the responsibility for the river reaches from St.Paul/Minneapolis to

Guttenberg, Iowa (GREAT I); Guttenberg to Saverton, Missouri (GREAT II); and Saverton to the confluence of the Ohio (GREAT III).

The study programs and recommendations of the three GREAT teams will be brought together into a river management strategy for the entire Upper Mississippi River. The goal of the study is to present to Congress and the people a river resource management plan that is, above all, realistic - a plan that is technically and economically sound, socially and environmentally acceptable, and capable of being put into action within a reasonable period of time.

B. Study Purpose and Scope

The purpose of the GREAT II Studies is to identify and resolve conflicts resulting from separate legislative actions of Congress which mandated that the Upper Mississippi River be managed in the national interest for commercial navigation and as a fish and wildlife refuge.

The concept of the study originated from a need to coordinate the maintenance activities of a nine foot navigation channel by the U.S. Corps of Engineers from Guttenberg, Iowa to Saverton, Missouri with other river uses. GREAT II was founded because of increasing concern by conservationists and the general public over the lack of information available about the impacts of U.S. Corps of Engineers channel maintenance activiities on many key resources of the river.

The scope of the GREAT II Study is directed toward developing a river system management plan incorporating total river resource requirements. GREAT II was organized early in fiscal year 1977 (October 1976 through September 1977) and is

studying the river from Guttenberg, Iowa to Saverton, Missouri.

C. Study Participation and Organization

The GREAT II Team is composed of representatives from the following Upper Mississippi Basin states and the Federal River Resource-oriented agencies:

State of Illinois
State of Iowa
State of Missouri
State of Wisconsin
U.S. Department of the Interior - Fish and Wildlife Service
U.S. Department of Agriculture - Soil Conservation Service
U.S. Department of Defense - Department of the Army - Corps of Engineers
U.S. Department of Transportation - U.S. Coast Guard
U.S. Environmental Protection Agency
Upper Mississippi River Conservation Committee (ex officio)

GREAT II is organized into 12 functional work groups and the Plan Formulation Work Group. Each work group is to accomplish the study objectives as they relate to the work group's functional area and as directed by the team. Work groups are composed of persons having expertise and interest in the work group's area of study.

This report summarizes the concerns, objectives, activities, conclusions and recommendations of the Cultural Resources work group as they relate to the GREAT II Study area.

D. Cultural Resources Work Group Organization

1. Participants

Membership on the work group is composed of 12 professional resource managers representing the fields of architecture, history and archaeology. Each of these resources is represented by expertise on the staff of each of the State Historic Preservation Officers as well as by staff of several regional educational institutions. In order to maintain broad representation of the various states an overt effort was made to have each resource represented by at least one person from each preservation office. Membership is, however, open to any interested person.

The following persons are members of the work group:

Adrian D. Anderson	Iowa State Historical Department, Division of Historic Preservation
David W. Benn	Department of Sociology and Anthropology Luther College
R. Clark Mallam	Department of Sociology and Anthropology Luther College
R. Stanley Riggle	Iowa State Historical Department, Division of Historic Preservation
Charles J. Bareis	Department of Anthropology University of Illinois - Urbana
Margaret Brown	Illinois Department of Conservation, Division of Historic Sites
Ted Hild	Illinois Department of Conservation, Division of Historic Sites
Orville Henderson	Missouri Department of Natural Resources, Office of Historic Preservation
Michael Weichman	Missouri Department of Natural Resources, Office of Historic Preservation

Jeff Dean	State Historical Society of Wisconsin, Division of Historic Preservation
Joan Freeman	State Historical Society of Wisconsin, Department of Anthropology
Roy Eichhorn	Corps of Engineers Rock Island District

Others who have participated in the work group include:

William Farrar	Illinois Department of Conservation, Division of Historic Sites
William Green	State Historical Society of Wisconsin, Division of Historic Preservation
Richard Lewis	Corps of Engineers Rock Island District

The work group chairman is Adrian D. Anderson. Stan Riggle is the principal author of the draft and final versions of the work group appendix.

2. Meetings and Procedurs

The Cultural Resources Work Group held one meeting (March 16, 1977) prior to the draft of the work group appendix. Communication with members is carried out by written memoranda and telephone. Decisions by the work group, when necessary, are made by a concesus of members responding to inquiries. Several memoranda have been distributed and work group members responding to these in effect directed the course of the work group. No formalized rules of order are observed.

3. Voting procedures

The activities of the work group, as a group, rarely result in conflicting points of view. Decisions are made by consensus of the members responding to inquiries.

4. Division of Responsibilities

The following items were the responsibility of all work group members:

(a) review of existing data pertinent to the work group, (b) design, provide input to and review and comment on the literature search and inventory study, (d) review and comment on Cultural Resource Work Group studies prepared by or under the direction of the Chairman, and (e) review and comment on the work group appendix.

The following items were the responsibility of the work group chairman, which he delegated to his staff: (a) assistance with preparation, implementation and completion of the contracts for the literature search and inventory study and preparation of the work group appendix, (b) represent the work group on the Plan Formulation Work Group, and on-Site Inspection Team, and (c) revise the work group appendix as determined by the public comments and the comments of the work group members.

II. PROBLEM IDENTIFICATION

A. Problem Identification Process

Once the twelve functional work groups and their overall objectives were formulated, the work group members began to identify public concerns, use conflicts and other problems related to their overall objective and area of study. A work groups' list of problems was composed of those problems identified in any of the following ways:

1. the problem was identified in GREAT I and was applicable to the GREAT II area.
2. the particular work group recognized an existing problem based on existing conditions
3. the particular work group recognized a potential problem based on future projections of existing conditions and trends
4. other work groups identified concerns relating to the particular work group's area of study
5. the public expressed concerns and problems directly to the particular work group
6. the public expressed concern and problem to a particular work group through the public participation and information work group (i.e., town meetings; houseboat trips, etc.).

These problems were compiled into a list to be evaluated by the particular work group for their relevancy to the study; the urgency or certainty of the problem; and the potential for resolving the problem within the time-frame of the study. Certain problems were eliminated from further study based on criteria guidelines developed by the Upper Mississippi River Basin Commission in 1974. The list of remaining problems was then prioritized by the work groups. (See Plan Formulation Work Group Appendix for the listing of these problems.)

The results of this screening process were put into tables and displayed in the Preliminary Feasibility Report.

Once the work groups had developed a set of problems and needs, they formulated a list of objectives designed to address and, at a minimum, partially resolve their problems. These objectives were then used to identify tasks and/or studies which the work group needed to accomplish in order to identify the possible alternative solutions to their respective problems. The problems, objectives and tasks therefore represent the plans-of-action each work group use to derive their final conclusions and recommendations.

The conditions, both existing and future, which were used to identify a work group's problems are discussed in the following sections. The year 1979 was chosen as a base point for existing conditions, and a project life of fifty years was used to predict future conditions. Attachments 1, 2 and 3 summarize the plan-of-action for each work group.

B. 1979 Conditions

1. State and Federal Roles in Cultural Resource Preservation

The reader should wonder why cultural resources should be considered in a study of the scope and intent of GREAT. Why are cultural things a resource? Why is the past important to the present and future management of a river? Principally the answers are based on American cultural values; they pertain to the prevalent national feeling that the past is the basic means by which Americans maintain continuity in everyday life. Of course this is not a uniquely American value.

There are three basic kinds of preservation of the past. These are associative, data, and esthetic and

environmental (Utley 1980). The purpose of associative preservation is to preserve important vestiges of the past for public interpretation because of their association with important persons, events, and movements, to promote education, inspiration, and patriotism. Preservation of data is also important for data contributes to our knowledge about the past and is useful for scientific and educational purposes. Certain sites, structures, districts, landscapes, and vistas may lack associative value and may not be important for the data they contain but are nonetheless important elements of the past and therefore may be preserved because of their esthetic or environmental value and maintained as part of the present environment.

Clearly there are many ways to implement these various kinds of preservation of cultural resources. Individual properties may be preserved for any or all of the purposes described above. Throughout the history of preservation in the United States it has usually been the private sector which has motivated government agencies and the Congress to enact procedures and laws protecting elements of the past. This tradition is a long one with the first 'thread' of preservation for associational purposes apparently having been the preservation of Hasbrouck House, Washington's headquarters in Newburgh in 1850 (Utley 1980). The preservation of data from archaeological sites was apparently a well-established scholarly pursuit by 1799 (see Willey and Sabloff, 1974:37). Early interest in preserving the past, at least on the part of the federal government, is marked by the erection of monuments on Revolutionary War battlefields (1880-1886), the creation of national military parks (1890-1895), and the preservation of spectacular archaeological sites in the southwestern United States (e.g., Casa Grande). The

expression of interest in the latter area reflected increasing scholarly interest and public concern for antiquities during the 1880's (Utley 1980). This was a precursor to several Congressional acts based on preserving sites for their associative and data values, in particular the Antiquities Act of 1906, the National Park Service Organic Act in 1916, the Historic Sites Act of 1935, the Surplus Property Act in 1949, the National Trust Act in 1949 (with amendments in 1953), the Federal-Aid Highway Act of 1956, and the Reservoir Salvage Act in 1960. What may seem to have been a plethora of laws and implementing regulations prior to 1960 was added to in significant ways in the following twenty years.

New legislation brought together some of the various aspects of preservation. The past twenty years has seen passage of the National Historic Preservation Act of 1966 (with important amendments along the way, particularly in 1976), the Demonstration Cities and Metropolitan Development Act in 1966, the Department of Transportation Act and Federal Aid Highway Act in 1966, the National Environmental Policy Act of 1969, the Archaeological and Historical Preservation Act in 1974, the Housing and Community Development Act in 1974, the Tax Reform Act of 1976, the Public Buildings and Cooperative Use Act in 1976, and the Archaeological Resource Protection Act of 1979. The success of these actions at consolidating the legal authorities and administrative responsibilities for preservation and conservation of the past will probably not be known for several years. To date the national preservation program would appear to be dispersed were it not for two very key pieces of legislation and Executive Order 11593.

Perhaps the most important legislation regarding historic preservation on the national level has been the National Historic Preservation Act of 1966 as amended (Public Law 89-665) and the National Environmental Policy Act of 1969

(Public Law 91-190). Executive Order 11593 ("Protection and Enhancement of the Cultural Environment") signed in 1971, when used in conjunction with the two acts, has enjoyed a substantive influence on preservation in the United States, even though there are now in excess of 70 pieces of federal legislation and implementing regulations pertaining to preservation and conservation of the built environment and the prehistoric past.

It is now policy, by act of Congress and the President that:

1) "the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people" (PL89-665), and

2) "The Federal Government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation. Agencies of the executive branch of the Government (...) shall (1) administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations, (2) initiate measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the people,..." (Executive Order 11593, section 1).

What then is being preserved? The intent, clearly, is to preserve important vestiges of the past because of their associational importance, the data they contain, and their esthetic and environmental value, for future generations. All federal agencies are directed to participate in this endeavor. Along with their mandated mission each federal agency has, as part of its mission, the responsibility to preserve, protect, conserve, and manage the important cultural properties under their control.

This very brief overview of the legal and institutional framework for preservation does not presume

to adequately portray the state and local legislation and policy development contributing to the preservation of cultural properties, nor to describe the many local actions which have taken into account the sensitive elements of the past. Each state in the GREAT study area has adopted legislation applicable to preservation and conservation of cultural resources on state lands, and some classes of prehistoric sites, such as burial mounds, are specifically protected. Numerous towns and cities have acted favorably to conserve and protect individual buildings, structures, and sites under the jurisdiction of local governments.

All federal agencies involved in management and use of the UMR corridor are by law involved in preservation and conservation of the past. These responsibilities are accomplished through a review system established to implement section 106 of the National Historic Preservation Act and Executive Order 11593.

Executive Order 11593 requires federal agency heads, in cooperation with State Historic Preservation officers, to

> "locate, inventory, and nominate to the Secretary of the Interior all sites, buildings, districts, and objects under their jurisdiction or control that appear to qualify for listing on the National Register of Historic Places."

Section 106 of the National Historic Preservation Act (PL89-665) states:

> "The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on

Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking."

The review system established to implement these mandates is described in Title 36, Code of Federal Regulations, Part 800 ("Protection of Historic and Cultural Properties"), administered by the Advisory Council on Historic Preservation.

Deserving of emphasis is the point that the review system is designed to "take into account" the potential effects of federal undertakings on any property listed in or eligible for the National Register of Historic Places. The criterion that the effects be taken into account is fulfilled when the comments of the Advisory Council are implemented. Oftentimes the National Register is interpreted as a list of properties that must be preserved. The National Register is a list of "districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture ..." (PL 89-665, section 101). Federal agencies are to take these properties into account and provide the Advisory Council a reasonable opportunity to comment about a proposed undertaking which may affect these properties. When a federal agency official proposes to transfer, sell, demolish or substantially alter a property listed on the National Register or which is likely to meet the criteria for listing, "he shall not act with respect to the property until the Advisory Council on Historic Preservation shall have been provided an opportunity to comment on the proposal" (Executive Order 11593, section 2b).

Normally the review process established to facilitate protection of significant properties works well and efficiently. The process is greatly enhanced when the review responsibilities are met early in project planning.

Many of the activities which would result from the GREAT recommendations, if implemented by the responsible

federal agencies, would necessitate review within the broad outlines described above. Federal actions not related to GREAT proposals would also go through the same review process.

The pervasiveness of the federal government, through its many actions involving change in the natural and cultural environment, brings along the protective responsibility for cultural resources. This responsibility extends over the GREAT II study area as it does over the rest of the country.

2. Existing Knowledge of Cultural Resources in the GREAT II Study Area

The first activity completed by the work group for purposes of GREAT was a literature search and inventory study (Petersen 1978). This study documented the existence of about 3,500 published and unpublished sources of literature pertinent to cultural resources in the study area. This literature was not evaluated nor assessed, however, to determine the relative value of the information contained in the specific references. Archival collections were not examined during this effort so continued effort to amass references to all literature for the study area would no doubt take a great deal of time and increase by many times the number of documented references. As part of this study inventory information was gathered to indicate the general location of all cultural properties (architectural historical and archaeological sites, buildings, districts, structures, and objects) in the area from Guttenberg, Iowa to Saverton, Missouri, insofar as these were known in January, 1978 and represented in state inventory systems, usually in state historic preservation program offices. This resulted in delineating the general locations of 1,100 archaeological sites (historic and prehistoric), and 3,680 buildings and other structures of

architectural and/or historical importance, and 33 steamboat wrecks.

The study area was defined as one-fourth mile inland from the bluffs on both sides of the river valley. Since most of the known archaeological sites are located on the bluff edge overlooking the main valley, and most properties of architectural and historical interest are in towns and cities, it is accurate to conclude that what is known of specific sites in the UMR corridor is but a microscopic sample of the total number of resources which are probably present. Additional surveys to locate and identify cultural resources in the valley proper, particularly archaeological sites, will no doubt substantiate this conclusion.

While the number of archaeological sites is expected to vastly increase, such sites are not located everwhere over the pre-inundation landscape. Careful analysis of existing information, including available data about archaeological sites and pre-inundation geographic information (which is recorded on a number of map series for the study area) would very likely result in the identification of sensitive areas. It could be predicted where numerous sites should be present, and where no sites would be expected. The number of known archaeological sites is shown by pool in Table 1.

Several extensive surveys have been conducted in the study area to locate and identify buildings and structures of potential historical and/or architectural significance. While most of these are in cities and towns, the number of recorded structures is shown by pool in Table 1. Since these numbers are based on information available as of January, 1978 several additional surveys have been completed, particularly in Iowa, adding several hundreds of structures to the inventory lists. Several surveys in the Iowa portion of the GREAT II study area demonstrate

that 11 to 15% of pre-1940 buildings may meet the criteria for listing in the National Register of Historic Places.

POOL #	LOCK & DAM CLOSING DATE	AGE IN YEARS	LOCATION		POOL LENGTH	SHORE-LINE LENGTH	LIFT AT LOCK	FLAT POOL DEPTH (FT.)		NUMBER OF RECORDED SITES *	
			TOWN	RIVER MILE	(MILES)	(MILES)	(FEET)	UPPER	LOWER	ARCHEO.	HIST/ ARCHIT.
11	9/14/37	43	Dubuque	583.0	32.1	312	11	9	20	114	49
12	5/14/39	41	Bellevue	556.7	26.3	280	9	?	?	45	505
13	5/13/39	41	Clinton	522.5	34.2	503	9	?	?	81	34
14	5/13/39	41	LeClaire	493.3	29.2	277	11	9	20	48	40
15	3/7/34	46	Davenport	482.9	10.2	38	11	9	20	9	652
16	6/10/37	43	Muscatine	457.2	25.7	231	16	9	23	61	543
17	5/14/39	41	New Boston,Il.	437.1	20.1	203	9	9	30	185	84
18	9/8/37	43	Burlington	410.5	26.6	279	8	9	27	133	61
19	7/12/13	67	Keokuk	364.2	46.3	246	9.8	9	36	222	1023
20	5/9/36	44	Canton, Mo.	343.3	21.2	93	38.2	9	26	44	85
21	7/23/38	42	Quincy, Il.	324.9	18.4	146	10.5	9	20	39	798
22	?		Saverton,Mo.	301.2	23.7	126	10.5	9	20	92	74
TOTALS AS APPROPRIATE					314 Mi.	2734 Mi.				1073	3948

TABLE 1. Summary of General Cultural Resource Characteristics of the Navigation System, GREAT II Study Area.

* Base for these data is January, 1978.

3. Role of Cultural Resources in Relation to Other Resources

The responsility for taking into account the effects of development on cultural resources as is required for federal undertakings has not been extended generally to non-federal development. The values of cultural resources are thus not generally recognized in state planning efforts except as these resources may compliment other resources, particularly in the realm of natural resource development. Preserve systems, to promote the long-range preservation of cultural and natural areas and sites, are established in each state in the study area. Also, several communities have sought to preserve elements of the past, particularly if there is a clear economic or recreational incentive to do so. Oftentimes the sacrifice of cultural resources, without data recovery, is considered appropriate by administrators and planners when there is a conflict between potential commercial development or use of an area and potential site preservation.

The purpose of federal funding assistance under authority of PL89-665 is to assist states with their historic preservation programs. Each state governor has appointed a State Historic Preservation Officer in response to the requirements of the US Department of the Interior for administration of federal Historic Preservation Fund monies in each state. Each State Historic Preservation Officer is responsible for carrying out the state's preservation program. This program has been relatively effective in bringing about the broad integration of preservation and conservation of cultural resources within the context of state government, so that there is an increasing tendency for state government agencies responsible for natural

resources to integrate cultural preservation with other programs.

4. Role of Cultural Resources in the Economy

The development and use of cultural resources is generally considered to have little impact on the economy. This observation, with further study, can very likely be applied in a regional economic framework. However, several towns and cities in the GREAT II study area have active tourism bureaus which often promote local historical points of interest. Such local historical resources range from small house museums to sophisticated restoration projects of street-scapes. Funding sources range from private family resources to corporate support, local governmental funding sources, and state and federal funding assistance. Certainly not all preservation efforts are supported directly by federal assistance; the more common source of support and project initiative springs from the private sector. When including federal programs, such as Community Development Block Grant program assistance through the Department of Housing and Urban Development, the federal government is the largest single source of funding. Under the CDBG program numerous dwellings, some of sufficient significance to qualify for the National Register of Historic Places, are rehabilitated. This improves local housing stock and some long-term results are savings in energy, and the influx of additional dollars into local economies through wages, taxes, and so on. Saving energy by conserving the built environment is receiving increasingly greater attention.

Downtown revitalization efforts, whether through local or federal funding assistance, are resulting in conserving the built environment as well. The effect of such efforts are more spatially concentrated than are most other preservation or conservation efforts. Where the downtown

is not revitalized through complete new construction numerous buildings of historical and architectural importance are often conserved. The energy benefits are also more concentrated and substantial relative to most other conservation-oriented revitalization efforts.

There are several substantial benefits to be obtained from revitalizing urban areas, particularly downtown districts:

- general revitalization of the city
- increased property for tax base and revenues
- support for the commercial business segment
- enhancement of community/neighborhood social well-being
- reduction of energy consumption due to transportation
- more efficient use of neglected utility systems

There are, however, disadvantages as well; a potential for displacement of low income persons when property values increase more rapidly than community/neighborhood income, and increased demand for city services over and above the pre-revitalization levels.

Energy conservation and cost savings over new construction are probably the most attractive advantages of preservation and conservation of developed areas. Relatively sophisticated studies have been conducted regarding energy conservation attained through rehabilitation of historic buildings (see for example Hannon et al. 1976, which includes a formula for calculating energy savings).

A major factor affecting the built environment is, of course, the salability of the philosophy of preservation. If preservation of a building can be shown to have an economic advantage, the building is more likely to be saved and re-used. In addition to energy savings, which can be translated into real savings, tax incentives

also are beginning to be attractive options for investors. The most substantial tax incentive related specifically to historic buildings is the Tax Reform Act of 1976. A recent study by the US Department of Commerce (Weber 1979) concludes: "this study suggests that the TRA has tipped the tax scale in favor of historic preservation." And, "the TRA should be useful to corporate owners of historic nonresidential properties as well as to anyone interested in tax-incentive polcies for the rehabilitation of all types of existing buildings."

5. How Cultural Resources are Affected by River Use.

Change in the landscape by natural and cultural agents results in direct and indirect influences upon cultural resources. There are obvious results of inundation and urban development. Inundation by water directly affected an unknown number of historic and prehistoric archaeological sites. In addition many buildings and other structures which might have been important historic resources if judged by today's standards were lost. This number is probably reconstructable but the results would be more of historic interest rather than having direct use in more practical applications. More importantly the identification of historical settlement patterns would be of interest to the scholar and for interpreting the relative significance of surviving structures which might be located outside the area of inundation.

An obvious result of urban development, which clearly was influenced by inundation is that growth was away from the area of inundation. Towns and cities developed between the inundation area and then toward the land areas away from the river. This displacement, influenced to a great extent by inundation and by transportation networks, (primarily railroads) resulted in further depletion of prehistoric and historic archaeological sites as well as

standing structures in the areas of intensive development.

The pattern of development in bands roughly paralleling the river continues to deplete the non-renewable cultural resources. In the valley proper there are lasting effects of inundation which continue to impact upon cultural resources, particularly archaeological sites. The effect of inundation was to raise the level of the river to higher levels in many areas than had ever occurred prehistorically. The high pool elevations cross-cut natural landforms, resulting in completely inundating many archaeological sites but also only partially covering numerous sites. There are several known instances where the latter has occurred; the remaining portions of the site not underwater are presently under a condition of erosion due to wave action, bank slumpage, and vandalism. Several examples of such sites are summarized in Table 2.

As development occurs away from the river proper and further toward the base of the bluffs which line the UMR valley, all ground disturbance has the potential for destroying additional archaeological sites. Many of the most important known prehistoric villages sites are located along the higher terraces which roughly parallel the UMR. Since urbanization takes place in these areas, urban development tends to eradicate any traces of some of these villages, as well as any traces of unknown sites.

There are more subtle, long-term changes which also take their toll on cultural resources. For example the buildings and other structures of the early period of industrial and urban development are gradually lost as these are replaced by newer structures. Although loss of the early historic period structures due to urban development is relatively concentrated in and around towns, the spread of urbanization, out from these centers, also depletes the finite resource base. Also, the historic landscape changes markedly. Rural landscapes

become more developed, vernacular architecture and the rural settlement pattern are gradually replaced by architectural styles of more recent vintage. The context in which rural architecture and landscape exist is changed to one of pockets of more concentrated development, or the buildings and other structures associated with a rural landscape may be razed in order to use the land for agricultural purposes.

The demand for additional services increases in expanding developed areas. Transportation networks, and sanitary facilities increase in size and usually in complexity. Recreation demands also tend to increase, both for parks and structural facilities within developed areas, and for recreation development.

The result of these many uses of the river and its associated resources is that nonrenewable cultural resources are depleted. In effect the surviving remnants of the resource base increase in relative value in terms of their educational, scientific, esthetic, and environmental characteristics, and to an extent these resources increase in economic value. The Federal government, particularly the Corps of Engineers and the US Fish and Wildlife Service, own or have jurisdiction over much of the remaining cultural resource base in the river valley proper. To these can be added the much less extensive base of cultural resources which no doubt exists between the levee system and the base of the bluffs. In the upland areas bordering the river valley the bulk of known cultural resources is in the jurisdiction of private property owners.

Since in each landscape situation the resources differ considerably, particularly prehistorically, public agencies have under their control the future of what vestiges of the past will survive, and for how long. So, how the river is used and how it is managed by the responsible public

agencies and by the private sector will determine what is left of the past for the future.

6. Public Conerns About Cultural Resources

The easily demonstrable benefit of preservation of cultural resources is in the area of energy conservation through adaptive re-use. This aspect of conservation of the built environment is now beginning to attract broad attention, both from the private and public sectors. The general public is historically motivated by cultural properties preserved for their associational value and for humanistic reasons. Preservation of data for educational and scientific purposes is less of a motivating factor.

Oftentimes public concerns for preserving specific properties are motivated by associational values, and secondly for their esthetic and environmental values. Frequently these concerns are expressed in the face of imminent development and probably reflect a reaction by vocal minorities toward development which failed to consider the broad public interests during project planning. Such reactions are symptoms of the problem of a lack of coordinated long-term planning, however well-intentioned the sponsors of development actions may be.

C. Projected Conditions - 2025 AD

1. Changes in the role of Cultural Resources in Federal and State Government

It is anticipated that every 7 to 11 years (a subjective assessment) there will be major legislative changes in the way in which federal agencies are expected to manage cultural resources. Legislative change will be brought about, in part, by the concerns of the public and the manner in which these concerns are expressed to

Congress. The extent to which new or restructured Congressional mandates are translated into implementing regulations is not possible to determine. The degree to which these responsibilities are relegated to the states, and the extent to which State legislation creates new responsibilities, will determine the future role of cultural resource preservation and conservation in State government.

Minimally, barring changes in the substantive requirements of existing federal laws, it is reasonable to anticipate substantial completion of location and identification surveys to inventory cultural resource sites of all classes (architecture, history, and archaeology). It would appear that with existing authority the management requirements can be implemented in order to protect numerous significant cultural properties on federal lands. The desirability of making existing authority more specific may develop in the future, with particular regard for defining more clearly the manner in which funds can be computed for such activities, and how these funds may be expended. The adequacy of funding, under present circumstances, is less than minimal. Future funding may actually decrease. As the resource base is depleted further there will probably be increased attention toward surviving unique examples of the past whether these be archaeological, historical, or architectural features.

2. Changes in Knowledge of Value and Location of Cultural Resources.

Additional knowledge about the location and relative importance of cultural resources will most certainly accrue. This knowledge will become available as survey coverage is increased; more properties will be identified. Much of this information will be obtained by surveys supported, in part, by federal funds, and will occur on public and

private lands. Public education (about historic preservation), particularly if it is implemented in educational curricula, will have the broad effect of increasing sensitivity to conservation of the past. This can be anticipated to have subtle long-term changes in attitudes at many levels of society regarding attitudes about conserving such resources.

3. Public Concerns

If long-term education does bring about increased sensitivity to cultural resources there will no doubt be increased public concern for the resources. There may always be a minority of instances in which preservation concerns are identified too late in the planning and design process to integrate alternative designs to lessen the effects of development. These will be fewer in number as a result of greater sensitivity for preservation and conservation, but also because there will no doubt be fewer resources.

4. The Future of Cultural Resources in the Economy

It is anticipated that more of the built environment will be conserved, if not preserved, in the future if the costs of energy continue to be increased. As shown for part of the study area between 11 and 15 percent of the pre-1940 housing stock in most communities of the UMR may meet the present criteria for listing on the National Register of Historic Places. This represents a relatively substantial number of properties but only from the perspective of what is considered to be of historical and architectural importance. There are numerous additional properties which were constructed prior to 1940. It is very likely that conservation of the built environment will turn more toward all older structures, rather than only

those listed on or eligible for the National Register, as a means of conserving energy.

Property values may increase as well in the study area. It is anticipated that as the values increase there will be a tendency toward additional conservation efforts.

The preservation and conservation of properties, including archaeological sites, simply for the data they contain may become more accute as fewer and fewer resources remain. As time passes there will be additional properties identified which attain their significance after 1940. Thus, unlike archaeological sites, buildings significant for their historical and architectural value will be added to the resource base. All the while, however, archaeological sites will only be depleted. The use of public funds to recover data from these increasingly unique sites will increase as the value of goods and services increases. There may however be fewer and fewer site-specific efforts at data recovery with the use of public funds, although basic scientific research will no doubt continue.

D. Statement of problems. See the following tables labeled "Attachment 1" for a listing of the problems identified by the Cultural Resources Work Group and as a result of Great II studies.

E. Work Group Sub-objectives. See the following table, labeled "Attachment 2" for a listing of the sub-objectives of the work group.

F. Work Group Plans of Action. See the following tables, labeled "Attachment 3" for a listing of the work group actions.

WORK GROUP: Cultural Resources PROBLEM IDENTIFICATION Attachment #1

1. STATEMENT OF PROBLEM (LIST IN CHRONOLOGICAL ORDER)	2. DATE IDENTIFIED	3. AGENCY, GROUP, ETC. WHO IDENTIFIED	4a. IS THE PROBLEM BEING ADDRESSED BY GREAT II?	4b IF IT IS, BY WHICH TASKS?	4c IF IT'S NOT, WHY NOT?
1) Cultural Resources are currently being impacted by river management.	1977	Cultural Resources W.G.	Yes	3,4,5,6, 7,8	--
2) Comprehensive Summary of baseline literature and inventory of known resources is needed.	1977	Cultural Resources W.G.	Yes	1,3,6,9	--
3) Systematic survey data are lacking for past, present and probably most future dredged material placement sites.	1977	Cultural Resources W.G.	Partially	2,3,4,9	Methodology will be developed to be implemented at a later time.
4) Many cultural resources are inferred to exist in the reach but the location of them is not known.	1977	Cultural Resources W.G.	Partially	3,4,9	Concerns are broader than the scope of GREAT.
5) Historical data on the age of side channels is lacking.	1977	Cultural Resources W.G.	No	--	Limited time and funding.
6) Cultural resource management policies and procedures of the Corps are vague and variably applied.	1977	Cultural Resources W.G.	Yes	3,4	--

WORK GROUP : Cultural Resources PROBLEM IDENTIFICATION Attachment #1-continued

1. STATEMENT OF PROBLEM (LIST IN CHRONOLOGICAL ORDER)	2. DATE IDENTIFIED	3. AGENCY, GROUP, ETC. WHO IDENTIFIED	4a. IS THE PROBLEM BEING ADDRESSED BY GREAT II?	4b IF IT IS, BY WHICH TASKS?	4c IF IT'S NOT, WHY NOT?
7) General development of floodplain & adjacent lands results in widespread destruction of significant cultural resources, and is probably resulting in inadvertent destruction of such resources as well as unknown resources.	1977	Cultural Resources W.G.	Partially	1,3,4	Unknown cultural resources will not be addressed.
8) Coordination should occur between GREAT II and the Great River Road Project.	1977	Cultural Resources W.G. & Public	Partially	5	Beyond scope of GREAT
9) Long-range planning should include the future needs of municipalities; e.g., for industrial and recreation expansion.	1977	Cultural Resources W.G. & Public	No		Overlaps with Problem 7
10) There is a general lack of public awareness of historic preservation throughout the reach of GREAT II.	1977	Cultural Resources W.G.	Yes	3,5	--
11) Potential historic significance of Navigation System is not documented nor evaluated.	December 1979	P.F.W.G. C.R.W.G.	Yes	4	--

ATTACHMENT 2

CULTURAL RESOURCES
WORK GROUP OBJECTIVES

OVERALL OBJECTIVE: To determine the means, and to make recommendations, for preserving and protecting the cultural resources of the Great II reach.

SUB-OBJECTIVES:

1. To provide assistance regarding cultural resources to other work groups.

2. To review the relationship of the activities of other work groups to cultural resources.

3. To develop a program and procedures for inspection and inventorying cultural resources in past, present and future dredge areas and dredge spoil areas.

4. To devise a systematic plan by which the Corps of Engineers may properly inventory, evaluate, and manage the cultural resources under its control in the reach.

CULTURAL RESOURCES
WORK GROUP

FORMULATION OF TASKS

Attachment #3

DESCRIPTION OF TASK	PURPOSE OF TASK	PERSON(S) OR GROUP (S) RESPONSIBLE FOR COMPLETION OF TASK	PROBLEMS ADDRESSED BY TASK	ANTICIPATED COMPLETION DATE OF TASK
#1. CULTURAL RESOURCES LITERATURE SEARCH & STUDY INVENTORY	To draw together in 1 volume of information 2 things; (1) listing of references regarding cultural information (2) list of all cultural resources identified.	Division of Historic Preservation Contract	2,7	Completed.
#2. REVIEW OF GREAT II PROJECTS.	To ensure that cultural resource concerns are adequately represented in the decision-making process. - Relay info. to work groups.	Cultural Resources Work Group	3	Ongoing.
#3. REVIEW AND DEVELOPMENT OF MANAGEMENT POLICIES AND PROCEDURES	To meet with representatives of the CORPS and USFWS to identify & possibly develop procedures for these agencies to use in identification, protection and/or management of their lands for cultural resources.	Cultural Resource Work Group Chairman	1,2,3,4, 6,7,10	Limited work to this date-future uncertain. Limited time.

CULTURAL RESOURCES

WORK GROUP — FORMULATION OF TASKS — Attachment #3

DESCRIPTION OF TASK	PURPOSE OF TASK	PERSON(S) OR GROUP (S) RESPONSIBLE FOR COMPLETION OF TASK	PROBLEMS ADDRESSED BY TASK	ANTICIPATED COMPLETION DATE OF TASK
#4. CULTURAL RESOURCE MANAGEMENT POLICIES	Using info. to be gathered in Task 3-would develop a management framework and maximize effective long-term management practices & reduce duplication of efforts.	Cultural Resources Work Group Chairman	1,3,4, 6,7	Depends on completion of Task 3.
#5. WORK GROUP MEETINGS AND DISCUSSIONS	To disseminate new or existing information about cultural resources and related projects to other work group members.	Cultural Resources Work Group	1,8,10	Ongoing.
#6. PRE-LOCK AND DAM CONDITIONS ASSESSMENT	To determine what cultural resource sites existed prior to lock & dam construction which are now inundated by water.	Cultural Resources Work Group	1,2	

CULTURAL RESOURCES

WORK GROUP — FORMULATION OF TASKS — Attachment #3

DESCRIPTION OF TASK	PURPOSE OF TASK	PERSON(S) OR GROUP (S) RESPONSIBLE FOR COMPLETION OF TASK	PROBLEMS ADDRESSED BY TASK	ANTICIPATED COMPLETION DATE OF TASK
#7. ANALYSIS OF LOCK AND DAM CONSTRUCTION	To determine the effects that lock & dam construction & the resultant use have on the cultural resource sites.	Cultural Resources Work Group	1	
#8. GENERAL MODEL DEVELOPMENT	Would be used to assess the effects of wave action on shoreline archeological sites.	Cultural Resources Work Group	1	
#9. COST ANALYSIS	To determine the types & amounts of costs associated with identification of cultural resources surveys.	Cultural Resources Work Group	2,3,4	

III. WORK GROUP ACTIVITIES/ACCOMPLISHMENTS.

A. Literature Search and Inventory Study

1. Purpose and scope. The task was undertaken in order to assemble in one source all of the basic bibliographical and locational data for cultural resources (historic, architectural, and archaeological sites) known in the GREAT II study area as of January 1978. This information was to serve as base line information for further activities by the work group.

2. Description. The task utilized the services of one person for a period of several months to collect the information and prepare a report. The study emphasized cultural resources represented in the inventories in state preservation program offices in the four states in GREAT II.

3. Methods. All cultural resource sites were mapped on one of two map systems. One system was for archaeological sites, the other system was for architectural and historical sites. Locational data were mapped on USGS topographic maps which were then reduced by xerography. The general location and landscape features were then traced onto tracing velum, the tracings were inked and lettered and were then copied by xerography for the report. Bibliographic data were obtained from card files in state preservation program offices, and from state and local historical societies and libraries.

4. Schedule/Cost. The study was implemented with the use of funds from the Corps of Engineers for GREAT II studies under purchase order number DACW 25-77-M-1256 to the Iowa State Historical Department, Division of Historic Preservation. The study was initiated in July, 1977 and was completed, after two time extensions, in May, 1978. The cost to the government for the study was $8,400.

Additional costs of approximately $400 were absorbed by the Division of Historic Preservation, Iowa State Historical Department.

5. Results. Robert W. Petersen collected and compiled the information for the study and coordinated the preparation of the report with the staff of the Division of Historic Preservation. This effort resulted in obtaining the general locations of 1,100 archaeological sites, 3,680 buildings and other structures of historical and/or architectural importance, and 33 steamboat wrecks. About 3,500 titles of pertinent literature were listed in a bibliography organized by county, state, and subject.

A two-volume report entitled "Cultural Resources of the Upper Mississippi Valley: Guttenberg, Iowa to Saverton, Missouri" resulted from this effort.

6. Conclusions. No specific conclusions are included in the resulting documents. Generally there have been very few adequate systematic surveys conducted in the study area in order to identify cultural resources. Also the actual amount of pertinent literature may be many times greater than would be surmised from the study since archival collections including newspaper files, were not examined.

B. Review of GREAT II Projects

1. Purpose and scope. The task was undertaken to review GREAT II projects and studies from the perspective of cultural resources and to provide this information to other work groups.

2. Description. GREAT II projects were reviewed and comments made to work groups.

3. Methods. GREAT II projects and studies were presented in narrative form by other work groups. These were received by the work group chairman at Plan

Formulation Work Group meetings or by mail prior to such meetings. Each project, study, and all of the recommendations, were reviewed to ascertain what the possible impacts might be on cultural resources, whether known, or inferred to exist. Suggestions were made to lessen the possible effects of the projects on cultural resources. Recommendations were reviewed using a set of criteria established by the work group. These criteria were as follows:

(+) 1. The recommendation will benefit the preservation of a significant cultural resource.

(-) 2. The recommendation will adversely impact the preservation of a significant cultural resource.

(0) 3. The recommendation will not affect a significant cultural resource.

(C) 4. The recommendation may or may not affect a cultural resource (note the deletion of the word "significant") but potential effect cannot be determined based on available information.

(+,0,-,C) 5. The recommendation may have short or long-term indirect effects on cultural resources.

These same criteria were used to evaluate proposed dredged material placement sites.

4. Schedule/Cost. The task was implemented by the chairman of the work group, usually by delegation of responsibility for review and comment to a work group member. The reviews, comments, and recommendations were made within the scheduling parameters of the Plan Formulation Work Group. The costs for this task were absorbed by the Division of Historic Preservation of the Iowa State Historical Department, and involved 12 to 20 percent of one staff person's time.

5. Results. Completion of the task resulted in review of all GREAT II recommendations, all GREAT II studies, and in particular all potential dredged material placement sites.

6. Conclusions. The review procedure was relatively efficient. The ability to "condition" recommendations, including proposed future spoil placement sites, was a positive means of being certain that implementation of undertakings proposed by GREAT would take into account potential effects on cultural resources and would identify such impacts and mitigate them, prior to implementation of recommendations, particularly for projects which may involve ground disturbance.

Since all State Historic Preservation Officers will be involved in reviewing most of the potential future actions through the Public Notice process these early reviews may alleviate numerous coordination problems. Such review is consistent with existing procedures for compliance by federal agencies with section 106 of Public Law 89-665, and Executive Order 11593. These procedures stress consideration of cultural resources at the earliest possible stage of project planning.

C. Review of Cultural Resource Management Policies and Development of Integrated Procedures

1. Purpose and scope. This task integrated two tasks initially identified as separate efforts but which are inextricably related. The result was to review established policies, interpret how these are actually implemented and develop a framework for improving the implementation of them.

2. Description. Initially it was planned to meet with representatives of the Corps of Engineers and US Wildlife Service to identify and possibly develop procedures for these agencies to use in identification, protection, and/or management of cultural resources under their jurisdiction or control. As an extension of this it was planned to develop a management framework to maximize

effective long-term management practices and reduce duplication of efforts. Since an affirmative policy already existed (in PL 89-665) and EO 11593) and regulations by the Advisory Council on Historic Preservation (36 CFR 800), as well as the implementing regulations of the Corps of Engineers (33 CFR 305), to establish the framework in which this policy is to be implemented, the effort of the work group was gradually focused on how effective the implementation of the policy had been, and how this could be improved.

3. Methods. Existing policies, laws, executive orders, and implementing regulations were reviewed. This review encompassed the several parts of Title 36 of the Code of Federal Regulations pertaining to cultural resources, and also CFR 305 (implementing regulations of the Corps of Engineers). The US Fish and Wildlife Service, at the time of this review, had no final regulations directing implementation of responsibilities of the agency under section 106 of PL 89-665 or EO 11593. Since 36 CFR 800 (the procedures of the Advisory Council on Historic Preservation) details the manner in which compliance with section 106 of PL 89-665 is to be carried out, these were used as the measure of the effectiveness of federal agency procedures.

4. Schedule/Cost. The task was completed so that the results could be used as a basis for this section of the work group appendix. The cost for completing the task was absorbed by the Division of Historic Preservation of the Iowa State Historical Department. Additional costs for brief discussions with federal agency personnel were absorbed by the federal agencies.

5. Results. The results have been integrated with this appendix.after review by work group members.

6. Conclusions. An affirmative policy is stated in PL 89-665 regarding the responsibility of the federal government for protecting cultural resources. This is reiterated and strengthened in Executive Order 11593. Each federal agency is responsible for developing regulations consistent with 36 CFR 800 to implement their respective responsibilities. The regulations of the US Fish and Wildlife Service are in draft form at this time; those of the Advisory Council on Historic Preservation, and the Corps of Engineers are in place.

The first concern is that EO 11593 requires all federal agencies to locate and identify all cultural resources on or under their jurisdiction or control and to nominate significant properties to the National Register of Historic Places. Also EO 11593, and section 106 of PL 89-665, require that for federal undertakings the Advisory Council on Historic Preservation be given a reasonable opportunity to comment. The latter is being done; the Advisory Council is, nearly always, given a reasonable opportunity to comment prior to the release of federal funds for a proposed undertaking. When these undertakings involve federal land the specific requirement of EO 11593 that cultural resources on lands under the jurisdiction or control of the agency be identified is generally being fulfilled. What is generally <u>not</u> being done, or is being done extremely sluggishly, is the requirement that such resources be identified on <u>all</u> lands under the jurisdiction or control of the federal agency. This responsibility, which is apparently to be administered through operations programs and refuge management for the Corps of Engineers and Fish and Wildlife Service respectively, is generally going unfulfilled. This prohibits absolutely any affirmative management strategy.

Passage of PL 96-515 (1980 amendments to PL 89-665) establishes statutory responsibilities for managing federally-owned historic properties, among other things. The implementing regulations for this are to be prepared soon.

A second conern is with regard to the procedures of the Advisory Countil on Historic Preservation (36 CFR 800).

This regulation does not appear to include a clear requirement that cultural resources be identified on lands where there is no federal undertaking other than year to year operation and maintenance of the lands under federal control. For purposes of the Advisory Council's implementing regulations the undertaking may, however, be the year to year management of the lands even though construction may not occur. As portrayed in 36 CFR 800, section 2(a) of EO 11593 requires federal agencies

> "to locate, inventory, and nominate properties under their jurisdiction or control to the National Register. Until such processes are complete, Federal agencies must provide the Council an opportunity to comment on proposals for the transfer, sale, demolition, or substantial alteration of federally owned properties eligible for inclusion in the National Register" (from 36 CFR 800).

The actual implementation of this requirement is proceding at a pace far less than the rate of loss of several known, and probably numerous unknown, potentially significant cultural properties.

A third concern is that adequate funding authority may not exist for federal agencies to adequately implement procedures to fulfill the mandated responsibilities regarding cultural resources. The Corps of Engineers uses as their authority the Reservoir Salvage Act of 1960 as amended by the Archaeological and Historical Preservation Act of 1974, which authorizes the expenditure of up to one percent of project costs for data recovery from cultural resources before construction. The funding authority for the US Fish and Wildlife Service, other than PL 93-291, could not be determined by the work group. How these costs are computed rests on the interpretation of "project cost". This difficulty is recognized in 33 CFR 305.6 ("General Policy") which states, in part:

> "If the reporting officer determines from a cultural resources reconnaissance or survey that this authority may not suffice for anticipated cultural resource work in connection with a recommended plan, the (missing word) should seek specific Congressional authorization to exceed (t)he one-percent limitation defined in 305.4(1)" (parentheses added).

Also, for completed projects, and as a matter of general policy, it is further stated:

> "As in the case of cultural resource expenditures during construction, district engineers shall in no way view the one percent dollar limitation as a requirement for federal expenditures on cultural resource activities."

Under the additional guidance provided under 305.14(b) it is stated that for completed projects:

> "The Reservoir Salvage Act of 1960, as amended (16 U.S.C. 459), provides the Corps with the authority to expend funds for the recovery, protection and preservation (including necessary survey or other investigatory activities) of significant cultural resources where they will be directly threatened with irreparable loss or destruction by Corps operation and maintenance activities, within the dollar limitation defined in 305.4(i)."

The dollar limitation is one percent which, if it must be exceeded, must have the prior authorization of Congress.

Finally, in section 305.14(b)2, again regarding completed projects, it is stated that

> "No authority is contained in the Reservoir Salvage Act of 1960, as amended, for the maintenance, restoration or rehabilitation by the Corps of historic buildings, structures, sites or objects located on project lands whether or not such cultural properties may be on or eligible for inclusion in the National Register of Historic Places."

It would appear that although stated policy is to protect and conserve significant cultural resources through identification and management, there is a contradiction in specific regulations and an absence of authority to do so. In the absence of adequate authority and funding the proper identification and management of cultural resources under federal control or jurisdiction is very likely to proceed at a very slow pace.

At the present time a coordinative mechanism does exist which is sufficient for the present level of effort and probably can efficiently cope with greatly increased activity. The mechanism consists of the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the agency official of the involved federal agencies. Staffing deficiencies exist with all three entities but are most acute for the federal agencies since the brunt of the responsibility to identify and manage cultural properties on federal lands would be carried by the federal agencies. Identification surveys, and development of draft management plans for project lands can be dealt with effectively through contracting.

Another approach, however, is to increase agency staff to the level necessary to conduct identification surveys and develop management plans, after which many of the specific tasks necessitated for proper management, such as stabilization efforts at specific archaeological sites, could be implemented by contracting.

Additional funds for more staff or for contracting are a serious need. The authority to conduct such efforts may already exist.

D. Effects of Inundation on Cultural Resources

1. Purpose and scope. This task integrates three previous tasks; numbers 6,7 and 8 on attachment 3 displayed earlier in this appendix. The purpose of this task was to address in a general manner the effects of inundation on cultural resources and the potential future effects of navigation on the UMR.

2. Description. To accomplish this task it was necessary to consider the possible range of cultural resources in the part of the study area affected by inundation, to describe generally the effects of inundation on cultural resources, and to consider the general effects of wave

action on shoreline archaeological sites.

3. Methods. Historic maps of the pre-inundation landscape were examined to determine the general distribution of water in relation to landforms. To these observations were added additional observations about the distribution of known archaeological sites in the study area. Information for the latter was derived from the literature search and inventory study. It could then be inferred that where archaeological sites are known to occur under certain landscape situations, the likelihood that sites would be present in similar landscape situations for which adequate data was not available was greater than the likelihood of unknown sites occurring in dissimilar landscape situations.

4. Schedule/Cost. This was completed specifically so that recommendations for additional studies could be based on it, and so that the information would be available for this appendix. The costs for completing this task were assumed by the Divison of Historic Preservation of the Iowa State Historical Department except for costs for brief discussions with personnel of the Corps of Engineers and US Fish and Wildlife Service to obtain information.

5. Results. It was immediately recognized that several different map and air-photo series are available and contain most of the information necessary for a detailed evaluation of the effects of inundation on the pre-inundation landscape. Several studies have been undertaken by others from the perspective of several resources in order to determine pre- and post-inundation changes (e.g., McDonald and Konefes,1977). While the cultural resource literature search and inventory study (Petersen, 1978) provides some information about archaeological sites at the shoreline, it and the available map and air-photo series contribute only in

minor ways to the development of a full inventory of what was present prior to inundation.

Existing historical maps and air-photos could be used very effectively to determine areas that should be surveyed to locate and identify cultural resources. Most of these early maps, particularly those by the early Mississippi River Commission and the Board of Rivers and Harbors contain a very large amount of information on pre-inundation topography, land use and vegetation. Careful study of these sources and other sources of pre-inundation and post-inundation information could result in delineating areas where cultural resources, particularly archaeological sites may still be present.

Results of the general examination conducted for this task are as follows:

a. the pre-inundation landscape had been modified considerably by agricultural activity, thus destroying an unknown number of cultural resources.

b. there is not a direct relationship between the present 'normal' pool level and the landform which existed prior to inundation. The effect of this is to preclude looking only at terrace remnants where large village sites (as an example) are known to exist and then drawing conclusions about the distribution of village sites on terraces for the UMR since some terrace remnants were inundated and some were not. Nor is there a direct relationship between what was one kind of habitat prior to inundation and what that habitat is now.

c. several known archaeological sites are being affected by wave action; they are being seriously eroded. Without additional survey data this statement can not go beyond the inference that many more instances of this are likely to exist at the present time. These sites are summarized in Table 2. For further discussion of these sites see Technical Report No. 2 (Riggle, 1980).

Pool Number	Site Number	Approximate River Mile
11	Wisconsin:	
	47GT24	593
	47GT266	594
	47GT271	588
	47GT287	588
	47GT290	588
	un-numbered site	588
	un-numbered site	588
12	Illinois:	
	11CA10	527
	11CA11	527
	11CA20	527
	Iowa:	
	13DB16	577
18	Illinois:	
	11HE3	423
	Iowa:	
	13LA84	Iowa River
	13LA71	Iowa River
19	Iowa:	
	13LE46	385
21	Missouri:	
	23LE22	337

Table 2.. Summary of known archaeological sites being effected by bank erosion in the GREAT II study area.

d. erosion of archaeological sites along the banks of the river and the islands in the river is brought about by wave action and fluctuation in the elevation of the pool. Wave action resulting from natural behavior of the river as well as resulting from use of the river by recreational and commercial vessels contributes to the erosion.

6. Conclusions. Continued use of the river for navigational purposes will very likely exacerbate erosion of archaeological sites exposed at the shoreline. Available information is too limited to adequately assess the long-term effects of erosion by whatever means on cultural resources. Recommendations were proposed on the basis of this overview and are described elsewhere in this appendix.

E. Cost Estimates for Identification Surveys.

1. Purpose and Scope. This task was undertaken to estimate costs for the various surveys and studies recommended by the cultural resources work group.

2. Description. Cost estimates for surveys and studies.

3. Methods. Cost estimates were based, when possible, on examples of studies similar in scope and magnitude.

4. Schedule/Cost. The estimates were constructed for use in this appendix. Costs for constructing the estimates were absorbed by the Division of Historic Preservation.

5. Results. The cost of each study which would result if all recommendations were implemented was considered an "impact" in the impact assessment. The eight recommendations would result in eight studies to adequately identify and locate cultural resources on federal lands. The estimated cost for each study is indicated in the following paragraphs.

The surveys resulting from Recommendation 5001 would cost between $900,000 and $1,280,000. This assumes all federal lands would be surveyed, with the exceptions of open water, aquatic/marsh, and sand/mud areas. Wildlife and habitat inventory data (Hagen et. al., 1977) were selected as the basis for this estimate. Although other data sources, such as recreation master plans by the Corps of Engineers, use land classification schemes, it was determined more appropriate to show the amount of area to survey in a manner approximating as closely as possible (based on existing knowledge) the actual field conditions of the land.

The acreages upon which this estimate is based are summarized in Table 3. These data do not reflect the changes in habitat in specific places from pre-lock and dam conditions. That is, it is not possible to equate generally areas of woody vegetation prior to inundation with areas of woody vegetation existing at the time these data were assembled.

These data are, however, a reliable indication of the relative size of existing habitat classes and thus what present field conditions are highly likely to be. Also, to the degree the original data are accurate, these data are useful for direct measurements of areas of habitat class and sub-class. Likely on-the-ground vegetation and moisture conditions are inferred from these data and the classification scheme in order to construct general estimates for surveys by pool or by habitat area.

To arrive at the cost estimate a figure of $10 per acre was multiplied by the total number of acres represented in Table 3. The cost of $10 per acre is a subjective average based on discussions with staff in several state historic preservation program offices.

Class	Minimum Area Classified	Type Symbol	Description
Terrestrial Herbaceous Vegetation	1.0 acre	G	Mixed grasses (other than Le Ph or E). Not a major type; some overlaps into the marsh category.
		F	Forbs - mixed broadleaf weed species mostly of Eurasian origins, the most common genera include Amaranthus, Zanthium and Ambrosia. Some overlap into the marsh category.
		Le	Leersia oryzoides (rice cut-grass) considerable overlap into marsh category.
		Ph	Phalaris arundinacea (reed canary grass).
		C	Wild cucumber (Echinocystis lobata).
Woody Vegetation	2.0 acres	1a	Cottonwood and/or tree willow with an average height of less than 20 feet.
		1b	Cottonwood and/or tree willow with an average height of greater than 20 feet.
		2a	Mixed lowland hardwoods with an average height of less than 20 feet.
		2b	Mixed lowland hardwoods with an average height of greater than 20 feet.
		Px	Plantation - a stand of planted trees as opposed to one resulting from natural regeneration.
		BB	Buttonbush (Cephalanthus occidentalis).
		S	Shrub species and/or woody vines which normally do not attain a height greater than 20 feet.
Land Use	2.0 acres	A	Agriculture - all areas appearing to have been tilled or pastured within the past year; Includes areas tilled and planted for wildlife foods. Abandoned fields are usually typed F.
		G_d	Developed grass - all areas such as most levees which are covered largely by grasses and which are mowed at least once per year; also includes lawns over two acres in size.
		D_p	Developed parks - Includes campgrounds, picnic areas, golf courses, and other outdoor recreation areas with developed user facilities. Inclusions such as parking lots or open lawns over two acres in size would be typed as D or G, respectively.
		D	Developed - all areas which are essentially nonvegetated due to man's activities (excluding plowed croplands).
		R	Residential - typically comprised of streets, houses, lawns, shrubs and trees.
Dredged Materials	0.5 acre	Dm-	Associated with type 1a, 1b, 2a, 2b, S, M, F or A.

Notes:

1) Following classes deleted from original data Open water, Aquatic/Marsh, Sand/Mud.

2) Dredge materials class lumps all subclasses of original data.

3) Figure of 19,025 for Land Use subclass (A) for Pool 19 apparently includes a significant portion of nonfederal land (i.e., 10,000 ± ?); the data for pool 19 also deviates significantly from 1963 data from COE of federal land holdings.

4) All data are in acres.

Table 3. Classification scheme for wildlife habitat and summary of cover type for wildlife habitat on all federal lands, pools 11-22. Source: Hagen et. al. 1977, with modifications as noted here.

Class : Terrestrial herbaceous vegetation							Woody Vegetation								Land Use						Dredged Material	Total Land
Subclass: Pool	G	F	Le	Ph	C	Sub total	La	1b	2a	2b	Pz	BB	4	Sub Total	A	Gd	Dp	D	R	Sub total		
11	74	193	78	204	-	549	206	348	126	6143	1.3	9.2	-	6833	506	53	62	200	130	952	223	8557
12	40	209	251	49	9.2	558	86	121	192	4757	-	13	-	5169	160	126	121	289	314	1009	25.4	6761
13	220	673	233	87	4.1	1218	262	245	380	8100	76	313	33.7	9411	2507	3.9	95	165	300	3071	64	13764
14	48	487	31.1	52	-	618	93	223	240	6443	3.7	9.4	3.1	7016	1095	219	65	688	739	2806	68	10508
15	4.5	78	-	-	-	82	-	-	56	260	-	-	-	316	445	109	551	1001	222	2327	0.9	2726
16	7.2	518	100	-	9.3	635	186	353	217	4702	-	-	90.5	5549	1694	148	324	708	426	3300	49.6	9534
17	339	472	42.5	-	11.7	865	104.2	414	112	6672	-	11.5	126	7440	422	29.9	25	133	38	647	55.6	9007
18	-	192	74	-	19.2	285	280	170	90	7196	-	-	2.1	7737	416	43	46	34.1	27.8	568	78	8668
19	25	908	107	-	59.2	1100	324	1150	532	10261	7.9	74	6.0	12355	19025	182	90	1217	589	21103	35.2	34593
20	-	206	-	-	3.5	209	134	196	203	2965	-	10.6	0.7	3510	2591	75	7.8	230	25.6	2930	58.2	6707
21	-	166	2.1	-	-	168	80	498	236	6286	-	21.4	-	7122	1024	63	6.1	181	111	1386	52.1	8728
22	-	111	5.7	-	2.9	120	92	773	206	5923	-	10.5	11.2	7016	1398	3.1	2.6	77	112	1593	71	8800
Totals by Sub-Class	757.7	4213	924.4	392	1119.1	6407	1847.2	4491	2590	69708	88.9	472.6	273.3	79474	31283	1054.9	1395.5	4923.1	3034.4	41,692	780.8	128,353

Grand Total All Classes = 128,353

Table 3 - continued.

The cost per acre ranges between $2 and $27. Also, a unit cost (i.e., dollars per acre) does not mean that all acre units, regardless of the survey conditions (varying from bare ground to heavy vegetation) can be surveyed for $10. Surveying a substantial numbers of acres (e.g., 1,000) at one time will likely result in a per acre cost of approximately $10. As the sophistication of survey methods increases, presumably the accuracy and precision of results will also increase, but the cost may also be expected to increase.

Recommendation 5001 would include identification of all cultural resources on all federal lands. It would thus subsume the costs of several other recommendations. Each following recommendation would be for a specific class of lands, resources, or management concerns.

If Recommendation 5002 was implemented the approximate cost for complete cultural resource identification surveys would be as follows:

Historic Channel Maintenance Plan:	$3,700 to $17,000
Flood Plain Channel Maintenance Plan:	$5,900 to $10,000
Removed from Flood Plain Channel Maintenance Plan	$5,200 to $8,000

The above estimates are based on a $10/acre cost for the acreages represented in the January 1980 version of each plan. Cost ranges are stated because the number of acres to potentially be affected are relatively small and site-specific survey conditions are not known. These estimates must be revised in the future as they are dependent on the final version of the Channel Maintenance Plan.

Although Recommendation 5003 does not relate directly to cultural resource surveys, the implementation of it could result in additional costs for the proposed workshops. A cursory estimate is $2,000/year for an annual workshop

consisting of Division and District personnel of the Corps of Engineers and representation from each state historic prservation program.

Implementation of Recommendation 5004 would result in minimal cost since it proposes encouragement to state and local governments. "Encouragement" could take a variety of forms, ranging from increased correspondance regarding preservation of the built environment, to intensive seminars. Four seminars, each one day long, may cost $8,000 total.

The recommendation may, however, result in local surveys being conducted. Surveys to identify properties of historical and/or architectural significance have been conducted in Dubuque, Clinton, Muscatine, and Burlington. Cost examples for these surveys are: Dubuque - $20,000, Clinton - $10,000, and Burlington - $10,000. Costs for surveys of smaller towns and sites may be considerably less.

No complete surveys of the developing areas of any towns in the GREAT II study area have been conducted to locate and identify archaeological sites.

The cultural resources, particularly archaeological sites, exposed at the shoreline of the UMR are subject to varying degrees of erosion. Recommendation 5005, if implemented, would result in examining the shoreline through the GREAT II study area to identify such sites. The use of a boat, and professional services, to conduct this study of the GREAT II reach would be approximately $40,000.

Implementation of Recommendation 5006 could substantially reduce the potential costs resulting from 5001. Recommendation 5006 would result in studying from a geomorphic (landform) perspective the pre- and post - inundation landscapes in the valley proper. Based on the abundant archival and published landscape data

already available, this study would result in delineating areas where, at the present time, geological conditions are favorable for preserving archaeological sites. This may eliminate the necessity for conducting identification surveys on substantial parcels of federal land. It would also result in very important information necessary to design adequate identification surveys. The cost to implement Recommendation 5006 is $22,000 to $30,000.

If Recommendation 5007 is implemented the result would be an analysis of the navigation system as a cultural resource significant in American engineering, transportation, and economic history. The study could be based on existing records including archival and published materials. The anticipated maximum cost of the study is $35,000.

Within the GREAT II study area are 33 known steamboat wrecks. These wrecks occurred in all pools except 13, 14, 21, and 22. If it is implemented, Recommendation 5008 would result in a study based on existing historical documentation to better delineate the locations of the known wrecks and determine if it is likely that parts of the boats may be present. The maximum cost of this study would be approximately $13,000.

6. Conclusions. This task resulted in cost estimates for each recommendation. These costs are summarized as follows:

Recommendation Number	Cost
5001	$900,000 - $1,280,000
5002	(Range of costs for all 3 channel maintenance plans is $3,700 - $17,000).
5003	$2,000
5004	$8,000
5005	$40,000

Recommendation Number	Cost
5006	$22,000 - $30,000
5007	$35,000
5008	$13,000

Recommendations 5002, 5005, and 5006 could be subsumed under 5001 but are for more specific purposes. The costs of these could be subsumed by the cost for Recommendation 5001.

IV. ALTERNATIVES AND RESULTANT RECOMMENDATIONS

A. Formulation of Alternative Solutions and Development of Recommendations Process

The tasks that each work groups chose to accomplish varied by work group, by type of problem they were addressing, and by the existing knowledge they had about that problem. All work groups needed to collect and organize background information. This background information was used to identify further problems, to provide input and data for other work groups, and as part of the narrative for their work group appendix. Where little background information existed, baseline data was collected and/or research studies conducted.

As all tasks were completed, the results were distributed to members of the pertinent work group. Conclusions were then drawn by members of the work group based on the results of their work groups' tasks.

The conclusions developed by each work group led to the identification and consequent development of potential alternatives to their problems. The results of some tasks indicated that there still was not enough available information to ensure a knowledgeable assessment of the potential alternative solutions to a problem. In these cases, no alternatives could be formulated and the only recommendation which could be made was for further study of the problem. Where completion of work group tasks led to identification of potential solutions, the alternatives were displayed on Attachment 4. The alternatives varied in specificity from site-specific guidelines to general policy changes, dependent upon the problem they were addressing. Alternatives displayed on Attachment 4 were assessed and an alternative selected on the basis of a judgmental impact

assessment. Once an alternative was selected, the rationale for its selection and all available supporting documents, information and studies supporting its selection were identified and displayed on Attachment 4. This information (and other) was used to compile a brief summary of the types of impacts that would result if the recommendation were implemented. Based on the impact assessment and careful evaluation of the recommendation the work group, through various voting procedures, either approved or rejected the recommendation.

All work group approved recommendations were sent to the GREAT II impact assessment coordinator for review and advice. The coordinator would then mail this information, complete with comments, back to the appropriate work group chairman. The work group then did a more thorough and detailed assessment of the impact potential of their recommendations. This information was recorded on Attachment 7. Each work group was responsible for obtaining or estimating the necessary information for their impact assessment through their studies, work group meetings, discussions with other work groups, discussions with other agencies having expertise in that particular field, discussions with economists and discussions with the impact assessment coordinator. When Attachment 7 was completed to the work groups' satisfaction, sufficient copies of Attachments 4 and 7 were brought to the next Plan Formulation Work Group meeting. The impact assessment was reviewed by all members present and additions, changes or suggestions were made to the impact assessment. Each work group chairman made the appropriate revisions and brought a final version of the impact assessment to the next Plan Formulation Work Group meeting for final review.

At this time, these recommendations were dropped from further active consideration, until all recommendations were submitted by all of the work groups. When all of the recommendations had been submitted to the Plan Formulation Work Group, the development of integrated and final plans began.

The recommendations brought to the Plan Formulation Work Group varied in specificity and implementability and were grouped into the following general categories:

1. Implementable actions within existing authority
2. Implementable actions requiring legislation
3. Implementable studies within existing authority
4. Implementable studies requiring legislation
5. Feasibility studies, etc.
6. Policy changes

Within each of the six groups above, the recommendations varied from general recommendations applying to the river as a whole to those recommendations site-specific in nature. Three categories of specificity used to help organize the recommendations into action plans are listed below:

1. general - apply to entire GREAT II reach or entire Upper Mississippi River Basin.
2. Pool - apply to a specific pool or group of pools.
3. site - apply to a specific site(s) within a pool.

The following recommendations represent those of the Work Group before they were modified by the Plan Formulation Work Group in the plan development process.

B. Cultural Resource Work Group Recommendations

Eight recommendations were developed by the work group. All of them pertain to river resource management. They are

actions which can be implemented within existing authority of the Corps of Engineers and US Fish and Wildlife Service and apply to the entire GREAT II reach. The development of alternatives (Attachment 4) and the impact assessment (Attachment 7) is preceded in each case by a description of the recommendation, the rationale for the recommendation, and an indication of which entity is proposed to be responsible for implementing the recommendation.

C. Pool-specific Recommendations

No recommendations are made that do not apply to all pools in the GREAT II study area, since the problems identified pertain to all pools.

Recommendation 5001

The Corps of Engineers and US Fish and Wildlife Service should implement an incremental approach to collecting resource locational data on federal lands on a pool by pool basis until all pools in the UMR have been completed.

Rationale: The deficiency of locational data severely constrains any effort to properly assess the effects of most activities on federal lands in the UMR and prohibits adequate management of cultural resources. The identification of such resources, nomination of significant cultural properties to the National Register of Historic Places, and management of the cultural resources is required by EO-11593, Public Law 89-665, and implementing regulations of the involved federal agencies.

An incremental approach, i.e., completion of discrete geographic units is recommended, rather than a comprehensive area-wide approach in recognition of the associated costs.

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5001

Pool Number All

River Mile -

Date Approved by Work Group January 1978

1. General problem addressed (write out & use number from Att. #1):

#1 Cultural resources are currently being impacted by river management.

#3 Systematic survey data are lacking for past, present, and most potential future dredged material placement sites.

#4 Many cultural resources are inferred to exist in the reach, but the locations of them are not known.

3. Sub-objective addressed (taken from Att. #2 - write out):

#4 To devise a systematic plan by which the Corps may properly inventory, evaluate, and manage the cultural resources under its control in the reach.

4. Tasks accomplished to address problem (taken from Att. #3 - write out):

#3 Review and development of management policies and procedures.

#1 Literature search and inventory study.

5. Listing of alternatives to problem:

a. Implement incremental approach to collecting resource locational data on federal lands on a pool by pool sampling basis, until all pools in RID have been completed.

b. Implement reach-wide approach to collecting locational data on federal lands on a systematic basis.

c. Do not conduct systematic identification procedures.

d.

e.

f.

g.

6. Selected alternative (a) **(write in the letter)**

7. **Rationale for selection of alternative:** The deficiency of locational data severely constrains any effort to properly assess the effects of most activities on federal lands in the reach and prohibits adequate management of cultural resources. The identification of such resources, and the management of them is required by 33 CFR 305 and EO-11593.
   District COE and FWS should lead.

8. **References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):**

   Discussions with RI COE, and DOI-HCRS, Washington.
   Reports: 1) documentation of cost estimates to appear in report of work group taks, 2) literature search and inventory study.

9. Rationale for elimination of other alternatives: To not complete identification procedures is contrary to existing regulations (33 CFR 305), and EO-11593; and allows wasteful destruction of scientific information which is of social value as well. A systematic reach-wide approach would necessitate significant financial investment in a short period of time and ignores the usefulness and efficiency of a sampling approach.

10. Preliminary impact assessment of selected alternative. **(List below <u>all</u> general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)**
    1. Increased costs to fund surveys.
    2. Reduces long-term costs because of efficiency gained by managing areas because of their potential resource content based on prediction.
    3. Increases recreational potential (e.g., variety of recreation).
    4. Benefits archaeological remains and historic structures.

11. Reason for work group rejection of recommendation:

ATTACHMENT 7

RECOMMENDATION # 5001 (Sheet 1 of 2)
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Increased costs to fund surveys.	Dollars.	Exclusive of construction projects, no funds have been allocated for surveys. At least 11 archaeological sites are known to be in present condition of adverse effect by bank erosion.	An unknown number of resources will be lost; some surveys may be conducted on federal lands coincidental with construction activities.	All identification surveys could be completed within 8-10 years of implementation and yearly funding at an adequate level.	Cost for surveys would be $900,000 to $1,280,000. Compliance by COE with 33CFR 305 may be completed. US FWS may also have completed requirements.
2. Reduces long-term costs by gaining efficiency in pool-wide (minimum management unit) or district-wide management based on predicting presence of important sites.	Dollars.	Same as above.	Same as above.	Many areas could be eliminated from survey as a result of sampling to show low likelihood for containing important sites. Cost savings could range from $200,00 to $600,000 when corrected for inflation. Cost of additional surveys on federal lands would be nearly eliminated.	Cost surveys would be substantial relative to a longer term approach.

ATTACHMENT 7

RECOMMENDATION # 5001 (Sheet 2 of 2)
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
3. Increases recreational potential (i.e., diversity) and educational opportunity.	Quality of education and recreational enjoyment.	More than 20 people make unauthorized collections of antiquities from federal lands. One site in the reach is developed for public benefit.	Continued vandalism of sites; depletion of resource base.	Identification of sites which can be developed in an appropriate manner but this may be site-specific.	
4. Benefits archaeological remains and historical structures.	Number of significant sites preserved.	No known significant sites being preserved or protected.	Same as present.	Sample of significant sites preserved and protected.	

Recommendation 5002

The Corps of Engineers should conduct, or cause to be conducted, surveys of dredged material placement sites proposed by GREAT on a systematic basis.

Rationale: The intent of this recommendation is to result in the Corps of Engineers meeting procedural requirements for review of the potential effects of dredged material placement on cultural resources in a timely and efficient manner. By obtaining this necessary reconnaissance information it would be determined if archaeological sites are present in proposed dredged material placement sites at an early point in planning. By doing all of the potential sites at one time costs for the survey would be reduced. An additional benefit is that surveys of these relatively small areas would contribute substantive information for planning additional surveys in the adjacent areas; the material placement sites would then be considered as sampling cells.

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5002
Pool Number ALL
River Mile -
Date Approved by Work Group January 1978

1. General problem addressed (write out & use number from Att. #1):

#3 Systematic survey data are lacking for past, present, and probably most future dredged material placement sites.

3. Sub-objective addressed (taken from Att. #2 - write out):

#3 To develop a program and procedures for inspection and inventorying cultural resources in past, present, and future dredge areas and dredge spoil areas where surveys are appropriate.

4. Tasks accomplished to address problem (taken from Att. #3 - write out):

#1 Literary search and inventory study.
#2 Review of GREAT II projects.

5. Listing of alternatives to problem:

a. Conduct surveys of dredge spoil placement sites proposed by GREAT on a systematic basis.

b. Conduct surveys of sites on a nonsystematic basis; i.e., year by year for spoil sites proposed for upcoming year.

c.

d.

e.

f.

g.

6. Selected alternative (a) **(write in the letter)**

7. **Rationale for selection of alternative:** Improves cost effectiveness and long-range (greater than annual) planning. Interpretation of recovered information may be very difficult to interpret on such localized levels. RI COE should lead.

8. **References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):**
   - — Survey by StP COE of historic spoil sites for north of Pool 11.
   - — Work group discussions.
   - — Work group reviews of potential placement sites.

9. **Rationale for elimination of other alternatives:**

   Although large areas would not be covered the spoil sites would be data "cells" which, collectively, are a sample of use in planning additional surveys for management of cultural resources, in addition to meeting review requirements for placement of spoil, early in the planning process.

10. **Preliminary impact assessment of selected alternative. (List below all general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)**

    1. Benefits archaeological remains.
    2. Cost savings measured in dollars.
    3. Cost of surveys.

11. **Reason for work group rejection of recommendation:**

ATTACHMENT 7

RECOMMENDATION # 5002 (Sheet 1 of 2)
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) *WITHOUT* RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) *WITH* RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Benefits archaeological remains.	Number of significant sites avoided or for which impacts are mitigated.	Previous dredged material placement sites not surveyed to locate sites. Consideration of such resources was active by 1977.	Placement sites may be reviewed for such impact on site by site basis or all sites to be used in a region might be surveyed.	All potential future spoil sites would have been surveyed; significant sites would have been avoided; no slowdown of maintenance dredging.	
2. Cost savings	$ and time saved.	Surveys have not been considered appropriate for sand-on-sand sites or on areas of made land. Selected channel maintenance may or may not change this, depending on review by State Historic Preservation Officers.	Selected spoil sites may have to be deleted.	As above. Also, it is estimated that only a few sites would be found. If 5 sites were found & all 5 were significant, a possible cost of $200,000 may be necessary to excavate all sites if excavation was determined to be the most prudent & feasible mitigative alternative.	Procurement costs for surveys on a year to year basis could double cost of getting all surveyed at one time. Mitigative costs avoided.

ATTACHMENT 7

RECOMMENDATION # 5002 (sheet 2 of 2)
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
3. Cost of surveys	Dollars				Historic CM Plan=$3700 to $17000. Flood Plain CM Plan =$5,900 to $10,000. Removed from Flood Plain CM Plan=$5,200 to $8,000. (All 1979 prices).

Recommendation 5003

North Central Division of the Corps of Engineers sh ·ld conduct regular workshops at the Division level for District staffs and state preservation program staff using case examples resulting from application of 33 CFR 305.

Rationale: The perception of 33 CFR 305 (the implementing regulations of the Corps of Engineers for identification and administration of cultural resources) by State Historic Preservation Officers and state preservation program staffs is that sections of the regulations are vague and are applied differently in different districts. The solutions are communication and education within the Division. It is the intent of this recommendation to increase the amount of accurate and precise communication at the level where it is most frequently applied; among the staff which work with the regulations on a daily basis.

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5003

Pool Number All

River Mile -

Date Approved by Work Group January 1979

1. General problem addressed (write out & use number from Att. #1):

#6 Cultural resource management policies and procedures of the Corps of Engineers are vague and variably applied.

3. Sub-objective addressed (taken from Att. #2 - write out):

#4 To devise a systematic plan by which the COE may properly inventory, evaluate, and manage the cultural resources under its control in the reach.

4. Tasks accomplished to address problem (taken from Att. #3 - write out):

#3 Review and development of management policies and procedures.

5. Listing of alternatives to problem:

a. - Conduct regular workshops at Division level for district staffs and state preservation programs staff using case examples resulting from application of 33 CFR 305.

b. - Allow misinterpretation or misunderstanding to continue.

c.

d.

e.

f.

g.

6. Selected alternative (a) **(write in the letter)**

7. **Rationale for selection of alternative:**

The perception of 33 CFR 305 by SHPO's and state preservation program staffs is that sections are vague and most sections are applied differently in different districts. The solutions are communication and education. NCD should lead; SHPO's and HCRS should participate.

8. **References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):**

- Work group discussions.
- Proceedings of the National Conference of State Historic Preservation Officers.
- Discussions with state preservation program staffs.

9. Rationale for elimination of other alternatives:

Misapplication of COE regulations complicates review process unnecessarily.

10. Preliminary impact assessment of selected alternative. **(List below all general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)**

1. Saves dollars by improving administrative efficiency of compliance process.
2. Clarifies points of mutual interest to COE and SHPO's.
3. Commitment of minor amounts of funds by NCD and states.

11. **Reason for work group rejection of recommendation:**

ATTACHMENT 7

RECOMMENDATION # 5003
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Saves costs.	Management efficiency. Appropriateness of management decisions.	States and COE districts interpret and apply 33 CFR 305 differently.	Continued misapplication.	Staff who use 33 CFR 305 daily would more appropriately use it.	
2. Clarifies points of mutual interest.	As above.	As above.	As above.	Increased efficiency by District staffs and state program staff; fewer administrative costs.	
3. Minor costs necessary for workshops.	$	Costs are minor; salary and travel for NCD, District & State staffs. Total costs for each workshop may be $2,000.	As above.	After several workshops, the necessity for them may diminish.	Additional cost of $2,000/year for workshops.
4. Improves institutional relationships.	Management efficiency.	Project-specification clarifications are common.	As above.	Increased stability & continuity in proper application of regulations.	

Recommendation 5004

The Heritage Conservation and Recreation Service and the involved states should encourage State and local governments to conduct surveys and develop ordinances which take into account the existence of important cultural resources prior to development.

Rationale: Other than private land owners, local governments maintain control over the majority of public lands within urban areas and immediate limits of municipalities. Contained on and within these public lands are potentially many non-renewable resources including archaeological sites, as well as standing structures of architectural and historical interest. The intended result of this recommendation is that HCRS and the preservation programs of the involved states will work more closely and intensively with local governments to develop local ordinances which will at a minimum consider the preservation and conservation aspects of the built environment prior to development; the long-term result being the conservation and adaptive reuse of recyclable portions of the built environment, thereby also saving energy.

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5004

Pool Number ALL

River Mile -

Date Approved by Work Group March 1979

1. General problem addressed (write out & use number from Att. #1):

#7 General development of floodplain and adjacent lands results in widespread destruction of significant cultural resources, and is probably resulting in inadvertent destruction of such resources as well as unknown resources.

#9 Long range planning should include the future needs of municipalities, e.g., for industrial and recreation expansion.

3. Sub-objective addressed (taken from Att. #2 - write out):

Overall objective: To determine the means, and to make recommendations, for preserving and protecting the cultural resources of the GREAT II reach.

4. Tasks accomplished to address problem (taken from Att. #3 - write out):

#5 Work group meetings and discussions.
#7 Analysis of Lack and Dam construction addresses this.

5. Listing of alternatives to problem:

a. Encourage states and local government to conduct surveys and develop ordinances which take into account the existence of important cultural resources prior to development.

b. Allow important resources to be destroyed in urbanized and developing areas.

c.

d.

e.

f.

g.

6. Selected alternative (a) **(write in the letter)**

7. Rationale for selection of alternative:

Other than private lands, local governments maintain control over the majority of public lands within urban areas and corporate limits of municipalities. Surveys are necessary in most developed areas to locate and identify cultural properties remaining in these areas.

BCRS should lead.

8. References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):

Work group discussions.

9. Rationale for elimination of other alternatives:

Intensive development creates a greater risk that important resources will be destroyed.

10. Preliminary impact assessment of selected alternative. (List below all general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)

The recommendation is to encourage survey and local government involvement leading to preservation of important resources. As such it would have no impacts. Results of such cooperation could lead to:

1. Protection and enhancement of archaeological and historic properties.
2. Community cohesion (e.g., neighborhoods).
3. Increase in life of usable structures.
4. Cost savings in dollars.

11. Reason for work group rejection of recommendation:

ATTACHMENT 7

RECOMMENDATION # 5004 (Sheet 1 of 2)
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Protection and enhancement of important cultural properties.	* Number of properties preserved or adequately recorded.	When development involves federal government such concerns are addressed.	Unknown number of important sites and properties lost or not taken into account.	Higher potential for preservation of important resources.	
2. Community cohesion.	*Neighborhoods preserved and rehabilitated.	Non-federal actions do not systematically take adverse impacts into account for purposes of preservation.	As above.	As above.	
3. Increased life of usable structure.	*$	Adaptive reuse examples are isolated; reuse is usually not considered.	As above.	As above. Also costs cannot be estimated at this time.	

* Involves potentially hundreds of structures but numbers of properties cannot be estimated due to lack of survey data. Properties older than 1940 would be of most concern.

ATTACHMENT 7

RECOMMENDATION # 5004 (sheet 2 of 2)
LOCATION (RIVER MILE) _____
POOL _____

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
4. Cost savings	$ with tax incentives adaptive re-use is cost effective and energy efficient.	As above.	As above.	Energy saved; local economy benefitted equal to or greater than by new construction.	

* Involves potentially hundreds of structures but numbers of properties cannot be estimated due to lack of survey data. Properties older than 1940 would be of most concern.

Recommendation 5005

The Corps of Engineers should conduct a survey of the banks of the UMR to locate and identify unknown archaeological sites and locate and determine present status of known sites abutting on bank edge (includes remnants of pre-inundation islands).

Rationale: All shoreline is subject to the potential effects of wave action and all sites proposed at the shoreline are subject to the effects of erosion brought about by wave action which is contributed to by the uses of the river for navigational and water-based recreational uses. Thus all shoreline is subject to the effects of wave action due to such uses. The systematic pool by pool approach would obtain all data necessary to locate such sites, of which there are several known to be in a condition of adverse effect due to wave action.

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5005

Pool Number All

River Mile -

Date Approved by Work Group March 1979

1. General problem addressed (write out & use number from Att. #1):

#4 Many cultural resources are inferred to exist in the reach but the location of them is not known.

2. Sub-problem addressed (write out - use only when necessary):

3. Sub-objective addressed (taken from Att. #2 - write out):

#4 To devise a systematic plan by which the COE may properly inventory, evaluate and manage the cultural resources under its control in the reach.

4. Tasks accomplished to address problem (taken from Att. #3 - write out):

#1 Literature search and inventory study.
#7 Analysis of effect of Lock and Dam construction.

5. Listing of alternatives to problem:

a. Conduct UMR bank survey pool by pool to locate and identify unknown archaeological sites and locate and determine present status of known sites abutting on bank edge (includes remnants of pre-inundation islands.

b. Conduct stream bank survey of federal lands only.

c. Disregard cultural sites expected and known to be eroding into stream.

d.

e.

f.

g.

6. Selected alternative (a) **(write in the letter)**

7. Rationale for selection of alternative: All of the shoreline erodes but some areas do so to a greater degree than others. Wave action is a contributing factor of the erosion process. Thus all shoreline is subject to potential effects of wave action. The systematic pool by pool approach would obtain all data necessary to locate such sites. Six sites are known to be eroding into the stream; all six would probably exceed the minimal criteria of significance for listing on the National Register of Historic Places.

RI COE should lead.

8. References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):

#1 Literature search and inventory study.
- State inventory files.
- Inundation studies by National Park Service provide basic data on effects of inundation.

9. Rationale for elimination of other alternatives:

Wave action and its effects occur on all shores regardless of ownership, thus the extension of COE responsibilities to the stream/shore interace of all lands.

10. Preliminary impact assessment of selected alternative. (List below all general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)

1. May lead to protection of significant archaeological sites.
2. Commitment of dollars for investigations.

11. Reason for work group rejection of recommendation:

ATTACHMENT 7

RECOMMENDATION # 5005
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Protection of significant archaeological sites.	Number of significant sites protected.	16 sites are known to be in condition of adverse effect. Presence of others is highly probable.	Loss of 16 known sites and unknown number of others.	Assessment and mitigation of effects on sample of significant sites identified as being affected.	
2. Costs of bank survey.	$	No funds committed to such studies.	Same as present.	As above.	Estimated cost for all pools (2,734 miles of shoreline) is $40,000.

Recommendation 5006

The Corps of Engineers and the US Fish and Wildlife Service should conduct geomorphic studies of the present land surface and literature and document search of pre-inundation landscape to determine likely areas of location and buried archaeological sites.

Rationale: Modern alluvium masks the historic contact surface thus reducing the ability to obtain locational information about buried archaeological sites. Geomorphic studies are a basic first step to designing adequate surveys to locate and identify resources on all lands in the river corrider proper. The intended result of such studies is the identification of areas where the pre-inundation landscape would be geologically favorable for containing archaeological sites. This information would then be taken into account in designing adequate surveys to locate such sites. This action would probably eliminate land areas which were submerged prior to inundation, or were wetlands during the prehistoric period as well, or are lands formed since inundation, from any need for survey.

Attachment #4
CR Work Group

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5006
Pool Number All
River Mile -
Date Approved by Work Group October 1979

1. General problem addressed (write out & use number from Att. #1):

#5 Historical data on the age of side channels is lacking.

2. Sub-problem addressed (write out - use only when necessary):

3. Sub-objective addressed (taken from Att. #2 - write out):

#4 To devise a systematic plan by which the COE may properly inventory, evaluate, and manage the cultural resources under its control in the reach.

4. Tasks accomplished to address problem (taken from Att. #3 - write out):

#6 Pre-lock and dam conditions assessment addresses this.

5. Listing of alternatives to problem:

a. -Conduct geomorphic studies of present land surface and literature and document search of pre-inundation landscape to determine likely areas of location of buried archaeological sites.

b. -Limit study to present land surface.

c. -Design land surveys without benefit of landscape information.

d.

e.

f.

g.

6. Selected alternative (a) **(write in the letter)**

7. **Rationale for selection of alternative:**

Modern alluvium masks the historic contact surface thus reducing the ability to obtain locational data. Geomorphic studies are basic first steps to designing sample surveys. (RI COE should lead, and FWS).

8. **References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):**
   - Numerous USDA county soil surveys.
   - Numerous reconnaissance survey reports performed for environmental review purposes.
   - Field experience of work group members.
   - #6 Analysis of pre-lock and dam conditions addresses this.

9. **Rationale for elimination of other alternatives:**

Lock and dam system artifically alters stream level relative to its historic elevations. This creates artificial boundaries rather than using the total mainstem landscape as the unit of study.

10. **Preliminary impact assessment of selected alternative. (List below all general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)**
    1. Commitment of funds for surveys.
    2. May reduce costs of surveys on land portion substantially.
    3. Increases likelihood of locating sites with most inherent potential of meeting criteria of the National Register of Historic Places.

11. **Reason for work group rejection of recommendation:**

ATTACHMENT 7

RECOMMENDATION # 5006
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Cost of surveys	$	Probably all information necessary for literature study is available. Field-checking after the study is necessary. Synthesis and checking existing data has not been done.	Not able to eliminate areas from survey to identify sites. Continued inability to predict sites nor interpret landscape context.	Could eliminate significant amounts of federal land from survey, since survey is not appropriate for areas of made land nor for areas which have been wetlands for thousands of years.	Cost of literature evaluation & synthesis & field checking for all pools is $22,000 to $30,000
2. Reduce costs of surveying federal lands.	$	As above.	As above.	May reduce costs of surveys by $200,000 to $600,000.	
3. Increase likelihood of locating significant archaeological sites.	Number of significant sites found.	As above.	Additional significant sites will be lost.	More significant sites may be identified, potentially more than 40 - which is a best guess.	

Recommendation 5007

The Office of the Chief of Engineers should conduct a historical architectural/engineering survey of the as-built navigation system structures to assess the significance of the system as a network important in the transportation, economic, and engineering history of the nation.

Rationale: The creation of the navigation system is generally accepted as a major engineering event in American history. Individual structures (e.g., Lock and Dam 19) are listed on the National Register of Historic Places. Structures may have collective significance as well. The intended result of this recommendation is to (1) evaluate the collective significance of the navigation system structures as a network, (2) nomination of the system as a significant network to the National Register of Historic Places, and (3) the elimination of the necessity for most if not all operations,maintenance, and engineering undertakings involving the structures from separate reviews and Memoranda of Agreement as required by Public Law 89-665 as amended and implementing regulations of section 106 of that Act. Further, such an inventory and nomination procedure is presently required by 33 CFR 305, the implementing regulations of the Corps of Engineers for the identification and administration of cultural resources.

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5007

Pool Number All

River Mile -

Date Approved by Work Group December 1979

1. **General problem addressed (write out & use number from Att. #1):**

   #11 Potential historic significance of structures of initial Navigation Project is not documented or evaluated.

2. **Sub-problem addressed (write out - use only when necessary):**

3. **Sub-objective addressed (taken from Att. #2 - write out):**

   #4 To devise a systematic plan by which the COE may properly inventory, evaluate, and manage the cultural resources under its control in the Reach.

4. **Tasks accomplished to address problem (taken from Att. #3 - write out):**

   No task adequately addressed this; problem was realized to exist in December 1979.

5. **Listing of alternatives to problem:**

   a. - Conduct historical architectural/engineering survey of as-built navigation system structures as a significant historic network (transportation, economic, and engineering history).

   b. - Continue approach of structure by structure review.

   c.

   d.

   e.

   f.

   g.

6. **Selected alternative** (a) **(write in the letter)**

7. Rationale for selection of alternative: The creation of the navigation system is generally accepted as a major engineering event in American history. Individual structures (e.g., Lock and Dam 19) are listed on National Register of Historic Places. Structures may have collective significance as well. Nomination of significant sites, districts, or netwould would greatly expedite environmental review.

(OCE should lead, with technical assistance of National Architectural and Engineering Record).

8. References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):

Discussions with individual work group members.
National Register criteria of significance and guidelines.

9. Rationale for elimination of other alternatives:

33 CFR 305 currently requires identification, assessment, and nomination of significant properties to National Register.

10. Preliminary impact assessment of selected alternative. (List below all general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)

1. Commitment of costs and research effort.
2. Expedites and improves review and planning efficiency, thus saving dolars.
3. Would significantly enhance public relations generally and environmental review of specific proposed actions affecting parts of the system.

11. Reason for work group rejection of recommendation:

ATTACHMENT 7

RECOMMENDATION # 5007 (Sheet 1 of 2)
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Costs for study.	$	Actions affecting specific structures are reviewed. No funds committed to such a study.	Same as present.	Cost of individual project reviews would be obviated.	Cost of study is estimated to be between $28,000 and $35,000 for pools 1-26. Recording is not included.
2. Improves review and planning efficiency.	Appropriateness of management decisions.	As above.	Same as present.	Improved management and planning efficiency.	
3. Enhance public relations.	Increases in positive image of CORPS.	No project-wide consideration of historical and architectural importance.	Same as present.	Increased public awareness and even better image of CORPS in eyes of public.	

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DEC 80 DACW25-79-M-1707

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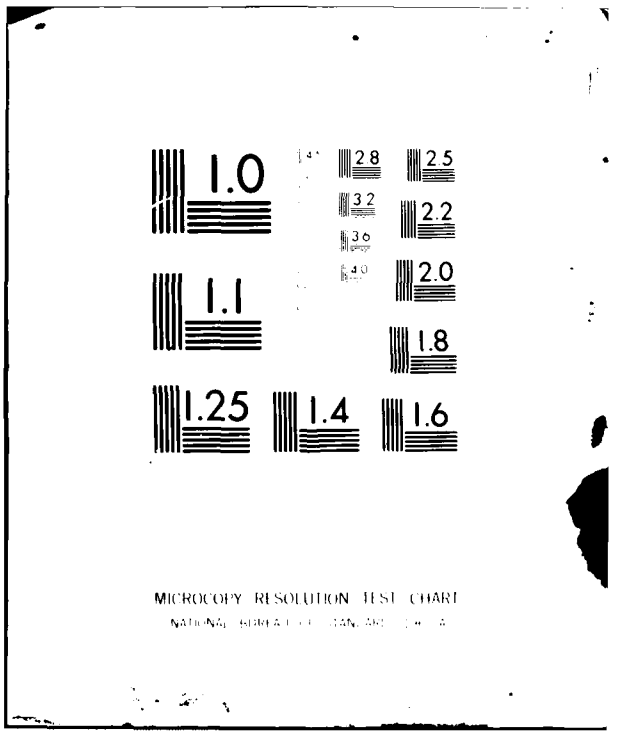
2 OF 2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MICROCOPY RESOLUTION TEST CHART

ATTACHMENT 7

RECOMMENDATION # 5007 (Sheet 2 of 2)
LOCATION (RIVER MILE) _____
POOL _____

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
* 4. Increases likelihood of preservation of significant examples of historic structures, districts or networks.	Appropriateness of management decisions.	See Col. 3 above for Row 1.	Same as present.	Management of significant contributing structures and segments of the network would be consistent on a project-wide basis. Where preservation was not prudent or feasible proper recording would occur.	

*
- A structure is at a specific location.
- A district is a geographically definable area containing historically related sites, buildings, structures or objects.
- A network is a system of related or connected physical units, generally a large geographic area and sharing a common cultural identity or purpose.

Recommendation 508

The Corps of Engineers should conduct a thorough historical records search and evaluation to identify the location of known steamboat wrecks in the UMR.

Rationale: 33 steamboat wrecks are known to be in numerous discontinuous areas of the Mississippi River between Guttenberg, Iowa and Saverton, Missouri and occur in all pools except 13, 14, 21 and 22. Only the general locations of these wrecks are known. The intended result of this recommendation is to determine more precisely these locations, based on a thorough evaluation of published and unpublished literature including archival documents. While it is unknown whether or not any such wrecks have been encountered previously in dredging operations there is a remote likelihood that this could happen. In addition these wrecks, if present, are significant historical objects subject to proper identification and management. This recommendation does not address the legal responsibility for such wrecks occurring on non-federal land or river-bed.

DISPLAY OF RECOMMENDATION & PRELIMINARY IMPACT ASSESSMENT

Recommendation Number 5008
Pool Number All
River Mile -
Date Approved by Work Group December 1979

1. General problem addressed (write out & use number from Att. #1):
   #4 Many cultural resources are inferred to exist in the reach but the location of them is not known.

2. Sub-problem addressed (write out - use only when necessary):

3. Sub-objective addressed (taken from Att. #2 - write out):
   #3 To develop a program and procedures for inspection and inventorying cultural resources in past, present, and future dredge areas and dredge spoil areas.

4. Tasks accomplished to address problem (taken from Att. #3 - write out):
   #1 Cultural resources literature search study.

5. Listing of alternatives to problem:
   a. Conduct thorough historical records search and evaluation to identify location of known steamboat wrecks in the reach.
   b. Do not conduct such a study.
   c.
   d.
   e.
   f.
   g.

6. Selected alternative (a) (write in the letter)

7. **Rationale for selection of alternative:**

33 steamboat wrecks are known to be in numerous discontinuous areas of the reach with the exception of pools 13, 14, 21 and 22. Only the very general location of these are known. Dredging and construction involving the river bed may inadvertently encounter such wrecks.

8. **References used to select alternative (use tasks, support documents and/or discussions, studies, articles, etc.):**

#1 Literature search and inventory study.

9. **Rationale for elimination of other alternatives:**

Acceptance of alternative is not consistent with regulations (33 CFR 305).

10. **Preliminary impact assessment of selected alternative. (List below all general impacts which can be identified by the work group. The level of detail required is only that for which the information is readily available.)**
    1. Enhance recreation since such sites would be of significant public interest.
    2. Cost of study.
    3. Enhances likelihood of preserving significant historical objects.

11. **Reason for work group rejection of recommendation:**

ATTACHMENT 7

RECOMMENDATION # 5008
LOCATION (RIVER MILE) _____
POOL All

RECOMMENDATION IMPACT ASSESSMENT FORM

1. LIST OF IMPACTS (SEE ATT. #4)	2. UNITS TO BE MEASURED IN	3. PRESENT CONDITION AS OF JAN.1,1979 FOR EACH IMPACT	4. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITHOUT RECOMMENDATIONS	5. DESCRIPTION OF MOST PROBABLE FUTURE (2025) WITH RECOMMENDATIONS	6. MEASURE OF IMPACTS (COL.5-COL.4)
1. Enhance education and recreation since steamboat remains are of public interest.	Wrecks located or positions identified or status determined.	Locations of boat wrecks are not known.	Locations of steamboat wrecks will remain unknown.	Wrecks could be located and protected or salvaged for historical data or developed as interpretive sites.	
2. Reduces likelihood of encountering steamboat wrecks during construction or dredging.	Appropriateness of management decisions.	As above. However, encounters with wrecks have not been identified.	Encounters may go unreported, or there may be no encounters.	Wrecks would be located as closely as possible on basis of literature study. Additional studies would then be done to locate wreck sites.	
3. Cost of study.	$	As above.	As above.	Study may show relatively precise locations; areas would be avoided.	Cost of literature study is estimated to be between $8,000 and $13,000.

V. SUMMARY

A. Introduction. The problems listed in Attachment 1 displayed earlier in this appendix were prioritized in the following order:

Priority Number	Problem Number
1	4
2	1
3	6
4	2
5	7
6	9
7	10
8	3
9	5
10	11
11	8

These problems are summarized in serial order as follows:

Problem # 1

Problem:
Cultural resources are currently being impacted by river management.

Original priority # 2 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)
#2 - See Technical Report #2
Also see sections II, III, and IV in this document.

Results:

The general extent of known impacts is described.

Conclusions: 16 known archaeological sites are in condition of adverse impact. Many potentially significant sites are inferred to exist; numerous of these may presently be in condition of adverse impact.

Resultant Recommendations:

5001

Implementation Requirements:
COE and FWS should fund such surveys as required under existing regulations; surveys should meet established minimal professional standards.

Does recommendation solve the problem?
Not completely.

If no, describe further needs and/or studies: Follow-up sections are necessary; complete requirements of agency-specific regulations and 36 CFR 800 (Procedures of the Advisory Council on Historic Preservation).

Problem # 2

Problem:
Comprehensive summary of baseline literature and inventory of known resources is needed.

Original priority # 4 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)

#1. Technical Report #1 (Cultural Resources Literature Search and Inventory Study).

Results: Draws together in one reference source much of the bibliographic data and general site locational data for the study area.

Conclusions: About 1,100 archaeological sites were known as of January 1978; about 4,000 examples of architectural/ historical importance were known; about 3,300 structures of bibliographic sources were noted. Very few areas have been adequately surveyed to identify resources.

Resultant Recommendations:
5001, 5002, 5004, 5005, 5006.

Implementation Requirements:

COE and FWS should fund such studies; surveys should meet established minimal professional standards.

Does recommendation solve the problem? Yes

If no, describe further needs and/or studies:

Future long-term management must ensue.

Problem # 3

Problem: Systematic survey data are lacking for past, present, and probably most future dredged material placement sites.

Original priority # 8 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)

#'s 2,3,4,9

Results:
See sections II, III and IV of this document.

Conclusions: Many potential spoil sites must be surveyed to determine potential effects of spoil placement on cultural resources.

Resultant Recommendations:

5001, 5002

Implementation Requirements:
COE as lead agency would conduct the surveys or cause them to be conducted.

Does recommendation solve the problem? Yes

If no, describe further needs and/or studies:

Problem # 4

Problem: Many cultural resources are inferred to exist but the location of them is not known.

Original priority # 1 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)

#'s: 3,4,9

Results:

See sections II, III and IV of this document.

Conclusions:

Many unknown resources no doubt exist.

Resultant Recommendations:

5001, 5002, 5004, 5005, 5006.

Implementation Requirements: Surveys must be conducted; this is presently required on federal lands but is not being done.

Does recommendation solve the problem? Not entirely.

If no, describe further needs and/or studies: Follow-up studies to assess importance of sites must be done; long-term management of significant sites must ensue.

Problem # 5

Problem: Historical data on the age of side channels is lacking.

Original priority # 9 out of 11 problems

Was the problem addressed?
No

If no, reason:
Time and funding were too limited.

If yes, tasks: (brief verbal description)

Results:

Conclusions:

Resultant Recommendations:

Implementation Requirements:

Does recommendation solve the problem?

If no, describe further needs and/or studies:

Problem # 6

Problem: Cultural resource management policies and procedures of the Corps of Engineers are vague and variably applied.

Original priority # 3 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)
#'s 3,4

Results:
See sections II, III and IV of this document.

Conclusions: Survey and identification studies are exceedingly slow for federal lands; management, as a consequence, is relatively primitive; funding authority for COE is not clear.

Resultant Recommendations:

5001, 5002, 5003, 5005, 5006, 5007

Implementation Requirements: COE-RIO, and North Central Division of COE, as well as Fish and Wildlife Service, should conduct surveys and COE-NCD should conduct workshops.

Does recommendation solve the problem?
5003 would probably solve problem 6.

If no, describe further needs and/or studies:

Problem # 7

Problem: General development of floodplain and adjacent land results in widespread destruction of significant cultural resources, and is probably resulting in inadvertent destruction of such resources as well as unknown resources.

Original priority # 5 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)

#'s: 1,3,4

Results: Technical Report #1 demonstrates most developed areas have not been adequately surveyed to locate and identify important cultural properties. See also sections II, III and IV of this document. .

Conclusions:
Destruction will continue but conserving the built environment may save considerably energy.

Resultant Recommendations:
5004

Implementation Requirements: HCRS should increase efforts to assist local governments in developing ordinances regarding conservation of the built environment.

Does recommendation solve the problem? No

If no, describe further needs and/or studies:

Local land use controls which take into account the built environment are needed.

Problem # 8

Problem:
Coordination should occur between GREAT II and the Great River Road project.

Original priority # 11 out of 11 problems

Was the problem addressed? No

If no, reason: This was identified by the public, but is beyond the scope of the work group's participation.

If yes, tasks: (brief verbal description)

Results:

Conclusions:

Resultant Recommendations:

Implementation Requirements:

Does recommendation solve the problem?

If no, describe further needs and/or studies:

Problem # 9

Problem: Long-range planning should include the future needs of municipalities; e.g., for industrial and recreation expansion.

Original priority # 6 out of 11 problems

Was the problem addressed? No

If no, reason:
Problem overlaps with problem 7 and was treated in tasks 1,3, and 4.
If yes, tasks: (brief verbal description)

Results:

Conclusions:

Resultant Recommendations:

Implementation Requirements:

Does recommendation solve the problem?

If no, describe further needs and/or studies:

Problem # 10

Problem:
There is a general lack of awareness of historic preservation throughout the reach of GREAT II.

Original priority # 7 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)
#'s: 3 and 5

Results: See sections II, III and IV of this document.

Conclusions: All agencies can enhance this awareness by distribution of written information concerning their regulations and responsibilities regarding protection and enhancement of cultural properties under their jurisdiction or control. Specifically the COE-RIO can address this as part of the resource management plan required by 33 CFR 305.

Resultant Recommendations:
Integrated into 5001, 5003

Implementation Requirements:

Federal agencies, particularly COE and FWS, could integrate information.

Does recommendation solve the problem? Not completely.

If no, describe further needs and/or studies:
States must increase efforts in public information and education regarding all aspects of conservation and preservation of cultural properties.

Problem # 11

Problem:
Potential historic significance of Navigation System is not documented nor evaluated.

Original priority # 10 out of 11 problems

Was the problem addressed? Yes

If no, reason:

If yes, tasks: (brief verbal description)

#4

Results:
A very cursory treatment of the problem is preserved in section IV of this document.

Conclusions: Navigation system is potentially eligible for the National Register of Historic Places as a network significant in American engineering, transportation, and economic history.

Resultant Recommendations:

5007

Implementation Requirements: Office of Corps of Engineers should implement the recommendation and nominate the navigation system to the National Register of Historic Places.

Does recommendation solve the problem? Yes but (see below).

If no, describe further needs and/or studies: Maintenance of the system would be reviewed under 36 CFR 800 and management of it as an historic resource would be addressed as required in 33 CFR 305. It is likely that mitigation of any effects on structures in the system would be lessened by curation and preservation of documents constituting the record of the construction of the system.

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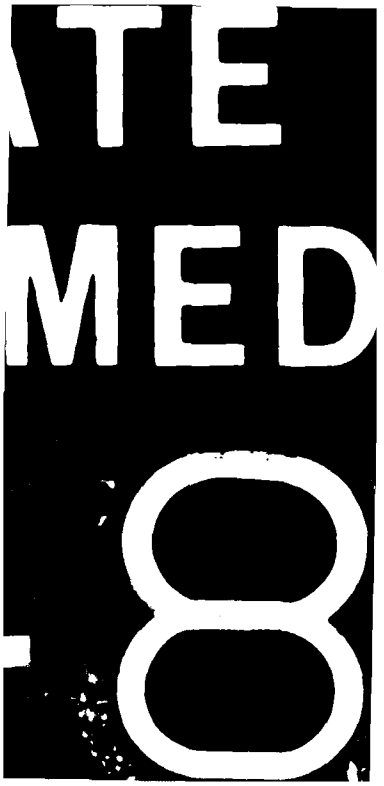
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